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FOR BOOKS ON ECONOMICS

PRACTICAL HUSBANDRY,

OR,

THE ART OF FARMING,

WITH A

CERTAINTY OF GAIN;

AS PRACTISED BY

JUDICIOUS FARMERS IN THIS COUNTRY.

THE RESULT OF

EXPERIENCE AND LONG OBSERVATION.

BY DR. JOHN TRUSLER.

In this Work is contained all the Knowledge neceſſary in the plain Buſineſs of Farming, unincumbered with Theory, Speculation, or Experimental Enquiry; alſo, a Number of Eſtimates of the Expences and Profits of different Crops in the common Way, taken from Minutes kept: and a Variety of uſeful Remarks and new Improvements in Huſbandry, not to be met with in any Books of Agriculture.

TOGETHER WITH

DIRECTIONS FOR MEASURING TIMBER.

The Fourth Edition, with great Additions.

London:
PRINTED FOR THE AUTHOR, AND SOLD BY
J. BROCKWELL, NO. 7, GREAT CARTER LANE, DOCTORS'
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1799.

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B

PRACTICAL HUSBANDRY.

TO FOLLOW THE TITLE.

Written in 1810.

SINCE this edition was printed, the prices of provisions have been considerably raised, and rents have risen in proportion; but this is no disadvantage to the farmer, but on the contrary, an advantage; for though rents are doubled, and the prices of crops almost trebled, those of farming utensils, taken in general, and the price of labour, have not risen in equal proportion—for example:

	In 1799.			In 1810.		
A good cart-horse, its price	£20	0	0	£40	0	0
A waggon	24	0	0	35	0	0
A cart	9	0	0	15	0	0
A plough	1	5	0	3	0	0
Pair of drag harrows	2	0	0	3	3	0
Shoeing a horse	0	2	8	0	4	0
Threshing a quarter of wheat	0	3	0	0	3	6
———————— barley	0	2	0	0	2	0

Other work, &c. in proportion.

Notwithstanding these alterations in the prices, it does not destroy the utility of this work; for every one who undertakes a business, must be presumed capable of making allowances in estimates for the rise and fall of particular articles. The estimates here given, are sufficient to lead him in making his calculations; but it may not be unnecessary to say, that a tenant or farmer can better afford to pay his landlord forty shillings per acre for land now, than he could twelve shillings in 1799.

Let us, for example, consider this in a crop of wheat:

	£	s.	d.
Suppose the rent, tythe and taxes to be (per acre) - - - - - - - - - - - - -	£3	0	0
Other expences *double* what is stated in pages 19 and 20, which is by no means the case -	5	5	0
	8	5	0
When the price of corn is considered, which instead of 5s. a bushel, as in page 20, it has been seldom lower than 15s.; but say only 12s.---Twenty bushels at 12s. - -	12	0	0
One and a half load of straw, at 1l. 16s. -	2	14	0
	14	14	0
Expences as above	8	5	0
It leaves a profit of - - - - - - - - -	6	9	0

Whereas in 1799, when rent, tythe and taxes were rated at £1, the profit, as in page 20, was only £2 17s. 6d. The present gains, therefore, on an acre of wheat, exceed what they were in 1799, by £3 11s. 6d.

And as other crops are proportionably increased in price, we may fairly state, by refering to page 55, that as 2l. 17s. 6d. is to £6 9s. so is £395 the nett annual profit of a farm of 150 acres, on an average of seven years, to a given sum. What that sum is, the rule of three will shew:

£	s.	d		£	s.		£	
2	17	6	:	6	9	::	395	:

Reduce these sums to 6d. each, and the statement is as follows:

£	s.	d.		Sixpences.
2	17	6	=	115
6	9	0	=	258
395	0	0	=	15,800

State it then as follows:

If 115 produces 258, what will 15,800 produce? This will appear to be rather more than £886.

Of course, taken in a general view, such a farm of 150 acres of good land, as produced on an average of seven years, by the estimate set forth in page 55, a profit of £395 will at the present time, 1810, under equal good management, produce a nett profit of £886; more than double. Hence, the rents, though so much raised; as provisions are raised also, the farmer has more reason to rejoice than complain. It requires, indeed, more money to stock such a farm; but the additional gains amply compensate for an increase of stock.

◆

TO MEASURE HAY IN THE RICK.

Trusses are made 3½ feet long, and 2½ wide, and if the rick hath sweated as it ought, it will be so close, that a truss shall not exceed eight inches in depth: some will be nine inches, and often they are twelve.

But we will suppose the rick in good order, and allow eight inches from the ground to the slope or bottom of the roof, and nine inches from the slope to the top. If a solid cut have been taken from the rick, in proportion to the produce of that cut, we may come at the exact contents of the remainder; but if not, we must proceed thus:—

Example.

What are the contents of a rick 35 feet long, 20 broad, and 20 high; that is, 10 feet from the bottom to the slope, and 10 feet from the edge of the slope to the top of the ridge?

Now 35 feet contain 10 trusses in length, of 3½ feet each; and

20 feet contain 8 trusses, in breadth of 2½ each.

10 feet to the slope is the height, and contain 15 trusses, of 8 inches deep each.

5, or the half of 10, taken from the slope to the top, will give the average contents of the roof. This is nearly the height of 6½ trusses, at 9 inches deep each. Fractions in so small a rick are not worth notice.

Now multiply the length by the breadth, and the product by the depth or height.

10, multiplied by 8, gives 80 trusses.

80, multiplied by 15, gives 1200 trusses in the first 10 feet, or great body of the rick.

Next, for the upper part,

Multiply 80 trusses, that is, the number in length and breadth, by 6½, and the product will be 520, which added to 1200, gives the contents of the whole, viz. 1720 trusses; this divided by 36, the number of trusses in a load, gives 47 loads, 28 trusses. Q. E. D.

INTRODUCTION.

IT may not be amiſs to premiſe, as an introduction to this work, that the following pages were not made public with a deſign of inſtructing men early bred to huſbandry; but to give Gentlemen, who may think proper to uſe a certain quantity of land, either for amuſement or convenience, ſuch an inſight into the nature of farming, as will enable them to check the negligence, correct the ignorance, or detect the impoſition, of ſervants.

There is not a more healthful, rational, or more pleaſing amuſement in rural life, than agriculture; nor does any one thing, independent of profit from ſale, yield a family more conveniencies, or in greater plenty, than a farm; but it muſt be a ſatisfaction, at the ſame time, not to pay more for thoſe conveniencies than neceſſary. To thoſe gentlemen who ſeldom examine their accounts, or look into the application of their money, this treatiſe will be uſeleſs: they take ſervants with good characters, and to their honeſty they truſt the whole. Few bailiffs, with a ſtated ſalary, are much in their maſter's intereſt; they crop the land, perhaps, and poſſibly keep it in good condition; but the expence with which it is done, is no part of their conſideration. A farmer's chief gains ariſe from making his lands produce as much as poſſible, and doing the buſineſs at as little expence as he can. For this purpoſe, he takes the advantage of ſeaſons, attends to his team, that his horſes are in health, kept ſo without waſte of provender, and that they work a certain number of hours; he takes care to employ no hands but what are abſolutely neceſſary; gives no more for labour than his neighbours; ſees that his labourers fill up their time, work their ſtated hours, and neither rob him of, nor waſte, his property; he gets his harveſt properly in, whilſt the weather is fine, buys in his ſtock at the beſt hand, and gets a market price for all he ſells. But, does every gentleman's bailiff do this? No. His maſter's eye is ſeldom upon him; his account is ſcarce ever looked at; and he is found more in the intereſt of the employed, than his employer. I have ſeen twenty men in a hay-field, and about a hay-rick, when half the number would have been ſufficient; they have ſtood in one another's way, and half their time they have been idle; inſtead of taking advantage of the dry time, and working till dark, they have quitted at ſix, and left the rick to the mercy of the weather. This a farmer *never* ſuffers; and it is by this, and other things, that gentlemen loſe by farming. But, would they occaſionally look into the buſineſs themſelves, (and none but ſuch can ever expect to profit by it,) they would very ſoon find their account in it, and it would fill up many a liſtleſs hour.

To gentlemen fond of riding, without an object in view, even riding becomes irkſome; but were they, when in the country, to ride about their farm every fine day, each gate opening with a latch; were they to examine, at ſuch times, the improvement of their cattle, the condition of their team and implements, the ſtate of their fences, the cleanneſs of their grounds, the richneſs of their meadows, and the luxuriance of their crops; new pleaſures would daily riſe before them, and their morning's ſaunter would be delightful. To ſuch perſons experiments occaſionally made upon an acre or two of ground, under their own immediate direction, would throw new lights upon huſbandry, be uſeful to the world, and amuſing to themſelves: but to make ſuch experiments of real uſe, minutes ſhould be kept of every circumſtance reſpecting them; the nature of the ſoil, the number of ploughings and harrowings, the quantity and kind of manure, the quantity of ſeed ſown, the time of ſowing, the weather, the cultivation till harveſt, the time of cutting, the produce when threſhed, and every other particular; and comparing theſe at home with former, or ſimilar, crops, would afford no unpleaſing amuſement in a wet morning. But, whilſt I am ſtudying the intereſt of others, I am forgetting my own. I am finding employment for *gentlemen*, who may *dread* employ, and under a notion of recommending my book, I am thus, perhaps, deſtroying its ſucceſs. For *any* uſeful employ to men of fortune, in the preſent age, is irkſome to think of. They *waſte* their important hours, and *fritter* away their life in *trifles*.

Jn. Trusler.

EGHAM, SURREY,
1799.

TRUSLER'S

PRACTICAL HUSBANDRY

THERE being a general rage for Farming throughout the kingdom, among men of landed property, and among others who take it up under a principle of amuſement, or gain, the Author of this work flatters himſelf, the following pages will be very acceptable to the Public; particularly, as the many treatiſes on farming hitherto publiſhed, are ſo crowded with theory, new experiments, and ſpeculations, that, inſtead of being uſeful to country gentlemen, they have ſerved to miſlead them; and, after the trial of a number of years, have ſhewn, that farming, to them, inſtead of producing profit, has brought on a conſiderable loſs. The fact, in ſhort, is this; ſuch books have induced gentlemen to try new methods, and follow them in all the round of idle ſpeculation, when they ſhould have purſued that plain method which every farmer follows. Thus have they attributed their loſs to the diſhoneſty of ſervants, which, in fact, aroſe from their want of knowledge in the buſineſs of farming; whereas, had they never looked into ſuch books of agriculture as are now extant, but depended even on the little knowledge and experience of an honeſt country ſervant, bred to the plough, they would have reaped an advantage; though not equal perhaps to the farmer who has followed the buſineſs his whole life.

To correct theſe miſtakes, and point out that method of agriculture

culture which every experienced farmer purſues, is the deſign of this Work; and the Author perſuades himſelf, that, if his inſtructions are obſerved and attended to, there is no land in this kingdom but will, while it amuſes the cultivator, yield him a conſiderable profit. He does not wiſh to deter gentlemen from trying experiments, or following new methods; but, if they wiſh to profit by farming, ſuch experiments, or new methods, muſt be made only occaſionally. The loſs of a few pounds on one acre of land is of no conſequence; but when that one is extended to ſome hundreds, it diſcourages the enquirer, and leads him to attribute that to the diſhoneſty of ſervants, the poorneſs of the ſoil, or bad markets, which is wholly owing to experimental enquiry.

CHAP. I.

OF SOILS.

THE firſt thing every ſyſtematic treatiſe on agriculture teaches the huſbandman to enquire into, is the nature of his ſoil. Whether this conſiſts of marle or limeſtone, more or leſs ſalts or oil, the *pabulum* of plants, to the plain, practical farmer, is immaterial; all that is eſſential for *him* to know, is, whether the land be ſtiff or light, and whether it is beſt adapted to the growth of wheat or barley. Of this he may inſtantly judge by his eye, or he may learn it from a ſight of the crops, the information of the neighbours, or the trial of one year; and if even reduced to pick up his knowledge from the laſt, an indifferent crop for one year cannot ruin him.

Every huſbandman knows, that rye, barley, turneps, and clover, will thrive beſt in a light ſoil; oats, beans, and wheat, on a ſtiff or ſtrong one; that ſtrong clayey land will require winter fallows to break and pulverize the ſoil; and that light, ſandy, or gravelly land will want ſummer fallows to deſtroy the weeds: that horſe-dung is the beſt manure for all kinds of land, but that clayey land will receive benefit from light dreſſing, though it be aſhes, or even ſand; and that light lands may be helped, even by a dreſſing of clay.

I would, however, adviſe every perſon commencing farmer, or taking a farm, to make ſome little enquiry into the nature of his lands. As he will never jump into a farm haſtily, without ſome conſideration, I would recommend it to him to take a view of the crops juſt before harveſt, the ſeaſon before he is to take poſſeſſion of it. If the land be poor, the crops of wheat or oats will be thin, the ſtraw ſhort, and the ears ſmall; if rich, the crops, on the contrary, will be thick, the ſtraw long, and the ears large, and in many places it will be lodged; that is, inſtead of the ſtraw ſtanding upright, it will be fallen on the ground,—a ſure ſign of the ſtrength and richneſs of the land. If the wheat be full of poppies, it denotes a light poor ſoil; if full of thiſtles, a ſtrong, good one. I mention this laſt obſervation, from what I have too often ſeen, that of a farm's being generally foul when a tenant quits it. Indeed a new occupier has little to expect, but to loſe money for the firſt three or four years, till he has cleaned his land, and brought it into good heart; (ſo apt are old tenants, through a mercenary principle, to over-crop it, and neglect to clean it, towards the expiration of their leaſes) unleſs he takes it immediately out of the hands of ſome gentleman, who has valued more the neatneſs of his grounds, than any profit he might derive from them. By ſuch a view of the different fields, he will be able to form a good judgment of the nature of the ſoil, and what kind of crops it is beſt ſuited to. If it ſhould ſo happen, that he cannot have this view of the farm the ſeaſon before, he may collect the information from ſuch neighbours as are no way intereſted in his taking it; or let him take a ſpade and examine the depth and nature of the mould, by digging in one or two of the furrows in each field. The greater depth of mould there is, the better the land, and the more capable of improvement. If the earth be a black crumbling mould, it cannot be bad. Foulneſs and poverty are to be got the better of, but it is very difficult and expenſive to increaſe the depth of the upper ſtaple of the land; that is, the earth in which the corn grows. With reſpect to the ſtrength and richneſs of the ſoil, thiſtles among the weeds are no bad proof of it. It ſhould be the new comer's buſineſs to enquire what dreſſing has been laid upon the different fields, and when; and what courſe of crops they have borne; that is, what grain they have been ſown with ſince the laſt fallow, and he ſhould determine his future crops accordingly. If he goes this way to work, and crops his land agreeable to the courſes pointed out in this work, he will have no reaſon to apprehend much loſs; particularly, if he has got a good honeſt carter, with ſome little experience, who can plough and ſow the land well, and who will not rob his maſter himſelf of the grain when threſhed, nor ſuffer the threſhers to do it. Such a man may be eaſily procured in every part of the kingdom; for countrymen in general, accuſtomed to hard and homely fare, and unacquainted with the luxuries of life, have few temptations to diſhoneſty, and being void of art and cunning, if a little attended to by their maſter, will not readily find the way to injure him. Gentlemen, who, as I have before obſerved, are obliged to entruſt more to their ſervants than farmers do, have been apt to attribute their loſs in agriculture to them, which, in fact, has ariſen only from their trying experiments, purſuing every fanciful ſcheme laid down in books of huſbandry, and expending more in the beauty and neatneſs of their lands than is neceſſary. If gentlemen wiſh to profit by farming, they muſt content themſelves with tolerably clean fields, and good ſaving crops; but if they ſtudy to decorate the farms, by clipped hedges, large branching trees, that impoveriſh the headlands, &c. belt walks, and the like, they muſt expect to ſuffer in the product. Lands will require a certain number of ploughings and harrowings, and a certain quantity of manure, and will pay well for ſuch labour and expence; but if that certain quantity is exceeded, the money is thrown away; for the land may be made to produce as good a crop with five or ſix ploughings, as if ten were beſtowed upon it; and as to dreſſing, every farmer knows, it may be over done; for rank luxuriant wheat will be lodged with the firſt rain or wind, and the crop then is irrecoverably injured. A certain degree, therefore, of ploughing and manuring is neceſſary, and will be attended with advantage; but beyond that degree, the crop will not anſwer the tillage.

CHAP. II.

OF THE TEAM.

ANOTHER principal matter that has miſled many in their calculations of farming, is want of attention to the expences of a team. Few gentlemen, commencing farmers, begin with more than fifty or ſixty acres of land,—what is called a ſmall farm. Upon ſuch a quantity of land, I defy any but a working farmer to be a gainer; he who works upon his farm himſelf, and ſaves the expence of a ſervant, and who occaſionally goes with his horſes to job-work, ploughs and harrows for other people, who may now and then ſtand in want of aſſiſtance, or employs his team on ſpare days in carrying coals, timber, manure, &c. for ſuch as will hire him: for three or four horſes will nearly conſume the whole produce of a farm of fifty acres, unleſs the land be very rich indeed.

Light ſoils may be ploughed with two or three horſes; but ſtiff lands will require four, and ſometimes five; a ſufficient quantity of land then muſt be occupied to find full employ for ſuch a team, in order to pay the farmer for his toils. This team will cultivate about one hundred and twenty acres of arable land; and, as in moſt farms, there is ſome meadow, ſome upland graſs, and ſome coppice, we may reckon a farm of one hundred and fifty acres of land, not too much for a team of four horſes, a man, and a boy. Other ſervants need only be hired occaſionally. We will now conſider the expences of ſuch a team. But let us firſt eſtimate the value of the neceſſary farming implements, that we may be able to rate their annual decline in value, as part of the expences. I ſhall not be very nice or exact in theſe eſtimates, as the difference of a pound or two in yearly expences is of little moment; and as very accurate calculations would unuſefully ſwell the ſize of this tract; but I ſhall ſet them down from minutes I have taken, and eſtimates I have made from ſuch minutes, for my own curioſity, for many years.

The price of labour, and the firſt coſt of farming implements, will be found to vary a little in different counties, but not ſo much as to make the difference of the aggregate ſum of any conſequence. Our enquiries are not about ſhillings, but ſums of greater moment.*

It will be neceſſary, then, for the cultivation of a farm of one hundred and fifty acres, to have as follows:

---

* *The price of ſome of theſe articles has been raiſed ſince the firſt Edition of this Book; but this difference of price, as in all farming work, may be readily allowed for in making future eſtimates.*

	£.	s.	d.
One waggon, value about	24	0	0
Two carts	18	0	0
Two ploughs	3	10	0
A roller	3	0	0
Two large harrows	2	0	0
Four ſmaller ones, of two ſizes	3	0	0
A winnow	2	0	0
Two thill harneſſes, and three leading ones, and four halter-bridles, about	9	10	0
Two load of, or forty, ſacks	4	0	0
Eight dozen of hurdles	1	4	0

[These are ſuppoſed to be made of rods growing on the farm, the making of which will not coſt more than 10s. or 12s. but, as they will not laſt above five or ſix years, allowance is made in the price for new ones.]

	£.	s.	d.
A corn ſcreen, ſieves, meaſures, and other ſundry articles, for even money, about	4	16	0
	75	0	0
Four horſes, about	80	0	0
	£155	0	0

	£.	s.	d.
The annual decline of value of the implements above, upon an average, will be found to be about 10 *per cent.* that is or £ 75	7	10	0
That of the horſes, about 15 *per cent.* or 50 £	12	0	0
Farrier, and ſhoeing of four horſes	4	0	0
Blackſmith's bill, about	6	0	0
Wheeler's	2	0	0
Collar-maker, about	3	0	0
Carter, 9s. 6d. per week, and a lodging in the farm-houſe. This man will buy and ſell, and do all the buſineſs of the farm	24	14	0
Carry over	£59	4	0

	£.	s.	d.
Brought over	59	4	0
Boy's wages, 6d. per day	7	16	0
Greaſe for wheels, about	0	5	0
Two acres and a half of clover, value 5l. an acre, will keep four horſes ſeventeen weeks, if cut green, and carried into the ſtable to them; that is,*	12	10	0
During the time of eating green meat, one half peck of oats a-day is ſufficient for each horſe; ſay ſeven quarters and a half, at 19s. per quarter	7	2	6
Seventeen loads of hay will keep them the other thirty-five weeks, at 40s. per load	34	0	0
During theſe thirty-five weeks, they ſhould have one peck of oats each day per horſe, at 19s. per quarter; that is about thirty quarters and a half	28	19	6
Annual average expence, &c.	149	17	0

King's duty not reckoned.

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* *I kept four horſes for ſix months upon one acre and a half of meadow land, cut and carried into the ſtable: it was very rich land, and bore cutting three times; the dung the horſes made, more than well dreſſed that acre, and two acres more; and they only eat beſides, two pecks of oats per day, value* 1*s.* 3*d.* (*in* 1797) *that is* 8*s.* 9*d. per week. Had this land been cut for hay, I might have had three loads, value* 9*l. which for ſix months is* 7*s* 6*d. per week: this added to* 8*s.* 9*d. corn, makes* 16*s.* 3*d. a week for four horſes, or* 4*s.* 1¼*d. for one: they looked well, and did a great deal of work. By this mode of farming, a horſe for half a year coſts but little more than* 5*l. and the land not impoveriſhed, if dreſſed. It left a good lattermath afterwards.*

Some farmers contend, that it is not neceſſary to give them oats while at green meat; but, if they are worked hard, they will require oats.

The above expences being as neceſſary on a farm of ſixty acres, as upon one of one hundred and fifty, it evidently appears, that no profits are to be gained upon ſo ſmall a farm; for, after the rent, ſeed, and harveſt are added to the amount, there muſt remain a conſiderable loſs, even ſuppoſing the land, on an average, to bring in four pounds an acre; which, conſidering accidents, and the neceſſity of letting it lie idle for a fallow, once in five or ſix years, it cannot be ſuppoſed to do: but, let the ſame team do the work of a farm of one hundred and fifty acres (which, with management, it is capable of doing) and it will yield a conſiderable profit, as I ſhall hereafter ſhew. If gentlemen keep coach-horſes, which they can occaſionally ſpare to plough or harrow a few acres of ground, and cultivate no greater quantity of land than wil maintain thoſe horſes, and yield a product which they can conſume in their own families; they will certainly find their account in occupying even thirty or forty acres; as I have fully evinced in a Pamplet I publiſhed ſome years ago, called, *The Way to be Rich and Reſpectable*; the Seventh Edition of which isnow in print, price 3s. 6d. where it will appear, that a perſon may live as well, and make as good an appearance in the country, for half the money that others ſpend, having no ſuch land: but thoſe who keep horſes and ſervants, merely on the principle of farming, muſt not expect to profit, unleſs they occupy as much land as will employ thoſe ſervants and horſes fully.

Some have recommended the uſe of oxen inſtead of horſes, as eating no corn, and, of courſe, leſs expenſive; indeed, oxen do not decline in their value as horſes do, being, after four or five years labour, generally fattened, and young ones broken in in their ſtead; nor are they liable to ſo many diſorders as horſes: if an ox falls lame, he is only fattened the ſooner, whereas a lame horſe is of little value. Again, alſo, there is ſome little ſaving in harneſs, and attendance, when their work is done; but, when it is conſidered that it will require three, if not four, oxen to ſupply the place of two horſes, and of courſe that a greater quantity of hay is conſumed, the object ſaved is not ſo great: eſpecially when ſome farmers contrive to ſave the decline in value of their horſes, by doing their work with colts, and ſelling them at five years old for coach-horſes. By this method, their teams have turned out very profitable to them, the only neceſſary care being, not to work them too hard. To effect this end, the team ſhould conſiſt of mares, and a ſtone-horſe ſhould be kept on the farm. With gentle work, a mare may be kept in harneſs till ſhe drops her foal, and worked again a few days after, with her foal by her ſide.

I received the following particulars from a gentlemen in Wales, who kept ox teams many years. He was of opinion that all farmers ſhould have ox teams.

An ox may be bought at three years old, lean, for 10l. and at ſix years old will ſell for 14l. lame or not; and ſhould be always ſold off at ſix years old. A good farm horſe coſts 25l. or 30l. and its decreaſe in value at the three years end, is conſiderable, independent of accidents.

The average price of the food of an ox is, 1s. 6d. a week; that of a horſe, beſides ſhoeing and farriery, 8 or 9s. a week.

One horſe will pull as much as two oxen; but the farmer gains by the latter, and loſes by the former. It is now known that oxen pull better in harneſs, than in yoke, and that five oxen in harneſs, will do as much work as eight oxen yoked.

Oxen are better at a dead pull. They pull ſteady, and will pull ſo even and continued, as to break a rope by its extenſion; whereas horſes pull more by jerks.

Being now on the ſubject of the team, I will take the opportunity of recommending iron axle-trees to waggons and carts, inſtead of wooden ones; the firſt expence indeed will be more, each iron axle-tree coſting about five pounds; whereas the price of a wooden one is not above ſeven ſhillings and ſixpence: but I aver, it is the cheapeſt in the end, as they are not ſo liable to break, and will laſt out two or three waggons; and add to this, the principal motive of my recommending them, a waggon with iron axles is of conſiderable leſs draught than one with wood axles. I am perſuaded it is the difference of one horſe in four; that is, three horſes will draw as much with iron axles, as four would with wooden ones: and the reaſon is evident. To make wooden axles ſufficiently ſtrong, their diameter muſt be twice as large as iron ones; the friction, therefore, and of courſe the draught, muſt be proportionably greater.

CHAP. III.

OF WHEAT.

WHEAT being the farmer's ſtaple crop, to which he looks for his chief profit, he will pick out the cleaneſt fields for this grain, and ſuch as are moſt in heart. The land is generally fallowed and manured for a wheat ſeaſon, or the grain is ſowed on the breaking up of a clover lay, which has lain a year or two in that artificial graſs, or after a crop of turneps fed off with ſheep, the land for which has been dreſſed or manured the ſpring before.

The time for ſowing this grain, is from the beginning of September to the end of November; but the prime ſeaſon, as appears from a number of experiments made by Mr. Young, is between the firſt week in September, and the laſt in

October. Farmers, in general, wiſh to get their ſeed into the ground by the 29th of September; they ſeldom think of ſowing earlier; indeed if they are to break up a clover lay, or ſow it in a turnep field, they cannot well get their land ready ſooner; as, in the firſt caſe, they loſe the clover feed in the month of September; and, in the other, the turneps are of little value much before Michaelmas. If, therefore, they have much wheat to ſow, and but one team to prepare the ground, neceſſity often obliges them to be ſowing wheat in the month of November. If the land be wet, by poſtponing it ſo long, they may chance to loſe the ſeed-time, from an impoſſibility of working the ground; but if the land be dry, the end of November will not be too late to produce a tolerable crop. The nearer it is ſowed to Michaelmas, the more we may expect to reap.

Next, as to the quantity of ſeed per acre: This is, in ſome meaſure, determined by the cleanneſs and richneſs of the land. If ſown upon a fallow, or after turneps, two buſhels an acre is the general allowance; if on a clover lay, rather more than two buſhels—about two buſhels and a half. In a variety of experiments on clayey and gravelly ſoils, Mr. Young aſſerts, that two buſhels and a half is the moſt advantageous quantity for an acre of land; but farmers in general ſeldom ſow more than two buſhels, or two buſhels and one peck.

To prevent the wheat being black or ſmutty, it is ſeldom ſown without being firſt ſteeped ſome hours in brine, made of water in which as much ſalt has been diſſolved as will cauſe an egg to ſwim; when taken out, it is dried with powdered lime, and then ſown. This cuſtom took its riſe from an accident near the ſea ſide, where a quantity of wheat was ſowed, that, by the wreck of a veſſel had been ſome time under water. It was obſerved, that the year, in which this happened, was remarkable for ſmutty corn, and the wheat in that neighbourhood particularly ſo, whilſt the produce of that grain that had been ſoaked in ſalt water was totally free from the leaſt appearance of ſmut. Many farmers lime the ſeed only, by pouring boiling water on lime, and, when cold, ſoaking the ſeed in it.

The ſeed once ſown, it requires little care till harveſt: all that is neceſſary is, to keep it dry by water-furrowing, to weed it in the ſpring, if foul (which ſhould be done, if poſſible, before the end of April, leſt it ſhould be too much grown), and if its colour be a very dark green, and the crop ſhould be too luxuriant, owing to the ſtrength and richneſs of the land, to turn a flock of ſheep into it, in dry or froſty weather, in the month of March, and let them eat it down cloſe to the ground. If this precaution be not taken, there will be danger of its falling, or being lodged, by wind or rain, before harveſt, and the crop in a great meaſure ſpoiled. When eaten down by ſheep, it will branch out afreſh, and the ſtems, will be ſhorter, and leſs liable to fall.

Should the wheat, in March or April, bear a yellow hue, it is a ſign of its not being healthy; its colour ſhould be a dark green. In wet land it will look yellow; but, as the dry weather approaches, it will regain its colour. In wet ſoils, the narrower and higher the ridges or lands lie, the better; what ploughmen call, two or three-bout lands, are beſt; in this caſe, there being a greater quantity of ſurrows, the water will, of courſe, run off the readier, and the lands lie drier. In harrowing ſuch lands, after the corn is ſown, the horſes ſhould go in the furrows; this will leave the ridges round and ſmooth. In ſowing wheat, ſome plough it in, and others only harrow it in like other grain; the chief advantage of the firſt way is, to preſerve it from the birds. Wheat may be ſown, with advantage, with, or after, the ſecond ploughing.

If, in the month of February or March, the crop appears thin, weak, or unhealthy, top-dreſſings of wood-aſhes, malt-duſt, or ſoot, may be occaſionally ſown over it, at the rate of about thirty or forty buſhels an acre, which will greatly improve it; but this is an additional expence of twenty ſhillings an acre, neither of theſe articles being the produce of the farm.

Change of ſeed is another material object of attention, to which farmers pay a due regard, that their wheat may be large and heavy; nay, ſome kinds of grain will produce a greater quantity than others. The chief point with farmers in general is, not to have ſeed, if they can help it, from their own neibourhood, but, to procure ſeed from light land to ſow on a ſtiff ſoil; and ſeed from ſtiff or ſtrong ground, to ſow on light ſoils; and great care ſhould be taken, that the ſeed ſown be clean from the ſeeds of weeds, otherwiſe you contribute to the foulneſs of your land.

In a word, though wheat is a grain that will not pay great expences in the culture, it ſhould either be ſown on land in good heart, or not at all. It is a crop that ſhould ever ſucceed meliorating ones, viz. beans, clover, tares, turneps, &c. or a ſummer fallow, and thrives beſt on ſtiff ground.

The following is an eſtimate of a generally ſaving crop upon an acre of ground. As I ſuppoſe the farm to conſiſt of one hundred and fifty acres of land, and the aggregate expences of a team, wear and tear of implements, &c. to be as before ſtated 149l. 17s. I ſhall rate the team at twenty ſhillings an acre. The account then will ſtand thus:

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes, ſuppoſe . . .	1	0	0
Team, &c.	1	0	0
Two buſhels of ſeed, at five ſhillings .	0	10	0
Additional labour in carting and ſpreading manure, and water-furrowing	0	2	6
Carry over £.	2	12	6

	£.	s.	d.	
Brought over	2	12	6	4 5 -
Brining	0	0	6	0
Weeding (this not always wanted)	0	1	6	- 1 - 6
Reaping (this ſometimes leſs or more)	0	8	0	- 8 -
Additional labour in carrying in	0	1	0	- 1 -
Threſhing two quarters and a half and cleaning, at 3s.	0	7	6	- 12 -
Binding one load and a half of ſtraw	0	1	6	- 2
	£.3	12	6	5 10 .

Note. *In ſome articles more is paid now for labour and harveſting, than when theſe eſtimates were made; this muſt be allowed for, and alſo the difference in the price of grain.*

PRODUCE.

	£.	s.	d.
Two quarters and a half of wheat, at forty ſhillings	5	0	0
One load and a half of ſtraw, at twenty ſhillings	1	10	0
	6	10	0
Expences	3	12	6
Neat profit	£.2	17	6

Land may be brought into ſuch heart, as to produce four or five quarters of wheat an acre; at leaſt ſuch land as that I am now ſpeaking of, which I ſuppoſe to be worth fourteen or fifteen ſhillings an acre. In this caſe, every additional ſack of grain will produce an additional profit of eighteen ſhillings and ſix-pence. In the above eſtimate, I have alſo rated the price of wheat very low; it is much oftener at a higher price than otherwiſe.

Wheat will receive a greater advantage from dreſſing, if the manure be not laid on immediately for it; that is, if the wheat crop follows an ameliorating crop of turneps, tares, &c. for which the land had been previouſly dreſſed; for, by this method, the great ſtrength of the manure, which makes the wheat rank, is taken off by a prior crop.

Beſides, dreſſing and fallowing land for tares or turneps will produce a luxuriant crop, that will overſhadow the land ſo much as to ſmother any weeds carried on by the dreſſing, and of courſe the ſucceeding wheat-crop will be cleaner, as I ſhall ſhew in the chapter on Tares.

In looking over a field of wheat, if it be free from ſmutty ears, the ſtraw pretty thick on the ground, and not lodged, the ears in general large, and the crop tolerably even; that is, the ears of corn throughout the field riſing every where from the ground to a level with each other, it may be pronounced a good crop.

Wheat is ripe and fit to reap, when the ſtraw is every where yellow, and the ears hang down. If the wheat ſheds in reaping, it ſhould not be cut in the middle of the day, but mornings and evenings, when the dew is on; and that part of the field ſhould be firſt cut that was firſt ſown.

There are two or three ſorts of wheat, but I do not know that one will produce a more profitable crop than another,

If, after wheat is reaped and bound, there ſhould be much wet, the grain will be apt to ſhoot, particularly in the bands. In this caſe, it ſhould be opened, dried, and re-bound.

Between three and four hundred ſheaves an acre, provided the ears be large and heavy, is a very good crop. Some acres will yield from ſeven to eight hundred ſheaves; where there is ſo much ſtraw, there is generally leſs corn. Some acres again, if the land be poor, will produce ſcarce two hundred ſheaves.

If fifteen ſheaves produce a buſhel of wheat, it is a very good crop. In this caſe, an acre that gives three hundred ſheaves, will yield two quarters and a half, or half a load of wheat.

CHAP. IV.

OF BARLEY.

BARLEY thrives beſt on a dry light ſoil, and requires three ploughings at leaſt, if not four, with a good deal of harrowing to bring the land into fine and proper tilth. The ſtiffer the ſoil, the more ploughings are neceſſary. If the ſpring be fine and dry, there is time to make the ground tolerably clean for this crop, which is ſeldom ſowed till about the beginning or middle of April. Barley is frequently ſowed, and with ſucceſs, in the laſt week in April; but Mr. Young, from a variety of experiments which he made, aſſures us, that, provided the land be dry, and can be got into good tilth early enough (which may be, if barley follows a ſummer fallow), the moſt profitable time of ſowing it, is the end of February, or the beginning of March, as ſuch early ſowing will produce a third more at harveſt. This may be true, and worth the trial; but farmers, in general ſow it late, that they may have an opportunity of beſtowing much labour on their land, and making the ſoil as fine as poſſible. Beſides, ſuch late ſowing often enables them to crop the land that was ſown with turneps the year before for ſheep-feed, and which cannot be eaten off, perhaps before the end of March.

The quantity of ſeed uſually ſown, is four buſhels per acre; and this is univerſally allowed, when clover is ſown with it, to produce the beſt crop at harveſt. Indeed, when barley is ſown without clover, five buſhels of ſeeds will produce more grain at harveſt than four, but not in the proportion of five to four; ſo that four buſhels of ſeed per acre, is certainly the proper quantity to ſow with or without clover. As, in the caſe of wheat; the richer the land is, the leſs quantity of ſeed is requiſite; but that diminution of quantity is not great, perhaps a peck, or half a buſhel.

Change of ſeed is here as neceſſary as in wheat crops. Care ſhould be taken to ſow ſuch as was raiſed on a different ſoil to that on which we mean to ſow it; and that the ſeed be clean from the ſeeds of weeds.

The general method of cultivating barley is, to ſow the land with clover after the barley is in the ground, as will be ſhewn when we ſpeak of clover; at preſent I will give the reader an eſtimate of a tolerable ſaving crop of an acre of barley alone, but of ſuch with which clover is mixed.

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes	1	0	0
Team, &c.	1	0	6
Four buſhels of ſeed, at three ſhillings and ſixpence	0	14	0
Mowing	0	2	6
Expences of getting in	0	4	6
Threſhing five quarters, at two ſhillings .	0	10	0
	£.3	11	0

PRODUCE.

	£.	s.	d.
Four quarters, at twenty-eight ſhillings .	5	12	0
Straw, one load and a half, at twenty ſhillings	1	10	0
	7	2	0
Expences	3	11	0
Neat profit	£.3	11	0

Seven quarters of barley is no uncommon crop for rich light land; but from ſtiff land, you may not reap more than four, or three. When this is the caſe, barley ſhould not be ſown. I have valued the ſtraw at the price it would ſell for;

but this ſhould be eaten by the cattle, and conſumed on the farm, for the ſake of the manure. But, admitting this to be done, it is ſtill of equal value to the farmer.

From a continuance of dry weather after the ſeed is up, the blade will ſometimes look ſickly, and wear a yellow hue; but a little rain will ſoon recover it.

The ſame indications that declare wheat to be ripe, will pronounce barley to be fit to cut.

Care ſhould be taken that barley with which clover was ſown, ſhould be turned after it is cut, ſufficiently to dry the clover, before it is either houſed or ſtacked; otherwiſe it will heat in the mow, and ſpoil the grain. Good barley, as good wheat, may be known by the grain's being heavy, large, fair plump, and ſweet-ſmelling; not dry, diſcoloured, ſmall, ſhrivelled, or muſty.

CHAP. V.

OF OATS.

THIS grain, though not ſo profitable as wheat or barley, from the great number of horſes kept in this country, is a part of every farmer's crop. Indeed, though the produce is not of equal value with a crop of barley or wheat, there is more certainty in the price it will fetch at market; for I never yet obſerved ſo great a variation in the value of oats, as in that of the other two. If a farmer finds his land rich, and able to bear crops for years together, that will turn out more profitable than oats, he would be imprudent to grow any. In this caſe, it will be his intereſt to buy all the oats he wants, rather than grow them to a diſadvantage; but, if his ſoil be a hungry one, and he cannot procure ſufficient manure, he will do right to have a crop of oats occaſionally; for oats will grow almoſt in any land; though here, as in other crops, the richer the earth, the greater will be the produce. From four to five quarters of oats on an acre of ground, is a very good crop, where the land has been even dreſſed; but, as farmers are apt to take three or four crops from their ground, after it has been fallowed and manured, before they ſow it with oats, they ſeldom get more than three or four quarters an acre; whereas, were they to ſow the ſeed on ground in good heart, the produce of an acre would be from ſeven to ten quarters.

There are ſeveral kinds of oats, ſuch as are known by the names of, Eſſex, Poland, Scotch, and Black. The firſt two are a large-bodied grain; the Scotch, are ſmall white oats, ſuch as are given to horſes; and the black are alſo good horſe-corn but of a black colour. The Eſſex and Poland thrive beſt in light barley-land, the Scotch and black on ſtrong wheat land. The fairer, plumper, and ſhorter the body of the grain is, the better the quality; and to make it marketable, it ſhould not be brown or mow-burnt, or have any muſty ſmell. Such as is deſigned for ſeed, ſhould be well cleaned from the ſeeds of any weeds.

Clover may be, and often is, ſown with a crop of oats; but this is chiefly on ſtiff land, where barley is never ſown. In light barley land, farmers prefer the barley crop to ſow their clover in, becauſe, at that time, the ground is cleaner, and in better heart. I ſhall treat of an oat-crop here as ſown by itſelf, without any mixture of clover, or other graſs.

Farmers ſeldom plough more than once for oats, though it would be better to turn the laſt year's ſtubble in before Chriſtmas; and the cuſtomary time of ſowing them is in the month of March, but a dry April is a better ſeed-time than a wet March. As oats thrive beſt generally in ſtiff ground, it is proper to roll them after they are up. Black oats will, generally ſpeaking, admit of being earlier ſowed than white ones.

The quantity of ſeed generally allowed for an acre of ground, is five buſhels; though Mr. Young (whoſe authority I have more than once quoted), from his experiments, aſſerts, that the moſt advantageous quantity is, from ſeven buſhels to ſeven buſhels and a half; but it appears from his enquiries, that the produce of ſix buſhels does not exceed that of four buſhels and a half, more than about one buſhel and a half, which is juſt the extra quantity of ſeed; ſo that his experiments prove no more than that five buſhels, the cuſtomary allotment of all farmers, is the moſt advantageous.

The following is an eſtimate of a tolerable crop on an acre of ground:

EXPENCES.

	£.	s.	d.	
Rent, tythe, and taxes . . .	1	0	0	2 10 –
Team, &c.	1	0	0	1 0 0
Seed, five buſhels, at two ſhillings and ſix-pence	0	12	6	– 12 6
Mowing	0	1	6	– 2
Weeding and water-furrowing, perhaps .	0	2	0	– 2
Getting in	0	2	0	– 2 6
Threſhing four quarters, at one ſhilling and two-pence	0	4	8	– 12 –
	£. 3	2	8	5 1 0

PRODUCE.

	£.	s.	d.
Four quarters, at twenty ſhillings : .	4	0	0
One load and a half of ſtraw, at twenty ſhillings	1	10	0
	5	10	0
Expences	3	2	8
Profit	£. 2	7	4

There is an additional expence in carrying the crop of every field to market, which I have not mentioned before, nor was it perhaps neceſſary now, it being in itſelf but trifling.

Plenty of ſtraw in a crop of oats, generally denotes plenty of grain; but it is not always ſo in other crops.

There is a critical time in cutting of oats; if they are cut toon ſoon, before they are ripe, great part of the grain will not be threſhed out; if they ſtand till they are full ripe, they are very apt to ſhed in cutting, turning, and getting in. He who would preſerve his good crop, ſhould, as they ripen, every day examine it; and, if he finds them eaſily rub out as he handles them, ſhould order them to be inſtantly cut. It ſometimes happens, that one part of a field ſhall be riper than another; when this is the caſe, the riper parts ſhould be cut in the mornings and evenings, when the dew is on them; the greener part, not ſo liable to ſhed, may be cut in the middle of the day. The ſame care ſhould be taken in turning them, and raking them together after they are cut. If they are ſtacked or houſed before the ſtraw is quite dry, they will be apt to heat in the mow, get a brown hue, and a muſty ſmell, which will conſiderably reduce their value; and if they are full ripe, when cut and tumbled about in the middle of the day, half the crop will be left ſhed and ſcattered in the field.

Should the ſtraw of a crop of oats be ſo luxuriant as to fall or lodge; it will receive leſs damage than a crop of any other grain. We need not be apprehenſive, therefore, of its being too rank.

CHAP. VI.

OF BUCK-WHEAT.

BUCK-WHEAT, or French wheat, is a ſpring-crop, and frequently, like tares and turneps, ſown merely as a manure,

nure, to plow into the ground, in order to prepare it for wheat. It is a grain not commonly brought to market, yet, nevertheleſs, of importance to the farmer, as it will thrive in lands not in proper condition for barley, and will pay him well for ſowing it in rich ſoils; though the general opinion is, that it flouriſhes beſt on poor lands. But what is moſt worthy of conſideration in this crop is, that it need not be ſown till the middle of May, a circumſtance very advantageous to ſuch as occupy wet lands. So that if the ground be not in very good heart, or it ſhould turn out a bad ſeaſon for barley ſowing, it is not an unpleaſant thing to be able to reap from it a good crop of buck-wheat. Where barley is given to cattle, buck-wheat will anſwer the end as well; and the ſtraw, if properly got in, will turn out good winter fodder. Wet ſummers, are not ſo favourable for it as dry ones.

The time to ſow this grain is, as I ſaid before, about the middle of May, and the moſt advantageous quantity of ſeed, per acre, one buſhel. If the land, by frequent ploughings and harrowings, be made tolerably fine, and the ſeaſon be favourable, there is little doubt of having a good crop.

An eſtimate of an acre.

EXPENCES.

	£.	s.	d.
Rent, &c. - - - - -	1	0	0
Team, &c. - - - -	1	0	0
Seed, one buſhel - - -	0	3	6
Mowing - - - -	0	1	9
Harveſting, &c. - - -	0	3	0
Threſhing four quarters, at one ſhilling and two-pence	0	4	8
	£. 2	12	11

PRODUCE.

	£.	s.	d.
Four quarters, at twenty-eight ſhillings	5	12	0
Expences - - - -	2	12	11
Profit - - - - -	2	19	1

When the land is in good heart, it is no uncommon thing to reap eight or nine quarters from an acre; and at market it will generally fetch the price of middling barley.

CHAP. VII.

OF BEANS.

BEANS thrive beſt in a ſtrong, ſtiff ſoil; and few farmers ſow them but in ſuch ground. There are ſeveral ſorts of beans, though ſeldom more than two are the objects of the huſbandman's attention; theſe are horſe-beans for the feed of horſes, and tick-beans for the food of hogs. I have ſeen ſome fields of long-pods, which is a garden bean; and I have myſelf ſowed an acre or two, more than once, with broad Windſors, and dwarf kidney beans; but as theſe are out of the line of farming, I ſhall not ſay more about them.

Of the two ſorts uſually cultivated at large, horſe-beans require a ſtronger ground than tick-beans. There are two methods of ſowing them; ſome ſow them broadcaſt on the ground, and plough them in, in one earth flat; or plough the ground firſt into ridges, then ſow them broadcaſt, and harrow them in; and others ſet them, bean by bean, in a line with dibbers. I have tried them both ways, and ſcarce know which to give the preference to. If they are ſown upon a clover lay, they certainly ſhould be ſet, that is, pricked in bean by bean; for as ſeldom more than one ploughing is given to a crop of beans, the earth of a clover field, when broke up, is not fine enough, that is, not ſufficiently pulverized, to admit of their being ſowed broadcaſt, like other grain; but, if they follow a crop of turneps, wheat, or oats, broadcaſt ſowing will do very well.

In ſowing beans broadcaſt, the expence of ſetting them (which is done by women and children) is avoided, and alſo a further diſadvantage; for though the diſtance from row to row is pointed out to them, they are apt to ſet them too thick in the rows, being paid in proportion to the quantity they ſet, ſeven-pence or eight-pence a peck, which they get rid of as faſt as they can; nor, watch them and talk to them as you will, can you prevent their doing it: this not only waſtes the ſeed, but too often injures the crop. But then again, on the other hand, when ſowed broadcaſt, every part of the field may not be equally covered, the land does not look ſo neat, and there being a greater difficulty in hoeing them, the men are uſually paid ſix-pence or nine-pence an acre extraordinary. The quantity of beans ſown and ſet is nearly the ſame in both ways. About two buſhels and a peck, or two buſhels and a half per acre. The crop at harveſt is rather in favour of ſetting than otherwiſe, but perhaps not ſufficient to pay the extra expence.

If drilling of crops be worth the attention of the farmer, it is more ſo in beans and peas than in any other grain; but even here, ſetting them is a very good ſubſtitute; and conſidering the expence of a drill-plough, which not one wheeler in twenty knows how to make or repair, and not one ploughman in a hundred knows how to uſe, I queſtion whether ſetting is not equally cheap in the end. I am ſure it is leſs troubleſome to the farmer. Beſides, on ſtiff clayey ſoils, where beans beſt thrive, it is impoſſible to uſe a drill-plough, which is adapted only to looſe, light lands.

The end of February, or early in March, is the cuſtomary ſeed-time for beans, though many ſow them ſo late as April; and ſome, I have heard ſay, put them in at, or before, Chriſtmas. From Mr. Young's Experiments it appears, that early in February is the moſt advantageous time; but accidents will occaſionally delay the ſowing, ſometimes for a week or a fortnight, ſuch as wet weather, particularly where they are ſet by women, and there is a want of hands to ſet them.

The great advantage of a crop of beans to the land ariſes from the hoeing, as ſuch a crop muſt be always hand-hoed with a ſix-inch hoe, once, if not twice, during its growth. If the land be tolerably clean, and the hoeing can be deferred till the beginning of May, once may be ſufficient: but if, after the firſt hoeing, the weeds ſtill get a head, and are likely to riſe as high as the beans, they muſt be hoed a ſecond time. If the land be in good heart, and the beans grow away ſtrong, after once hoeing, they will get above the weeds, and by their luxuriance keep them down, and ſmother them. As beans have a tap root, and draw their nutriment chiefly from the lower ſtaple of the ground; and as they are hoed once or twice during their growth, and of courſe the weeds deſtroyed; farmers conſider a bean crop almoſt as good as a ſummer-fallow, and will often ſow wheat immediately following; though I do not hold this to be good farming, unleſs the land had been manured for the beans. A maſter will be better able to judge whether they be clean hoed, provided they are ſet in rows, than in the broad-caſt method of ſowing; and in a broad-caſt crop, it is as neceſſary to cut out beans with the hoe, where they riſe too thick, ſetting them out at diſtances in the manner of turneps, as it is to cut up the weeds. To know whether this be properly done, we muſt walk over every land.

To judge whether a field of beans be good or bad, we muſt examine how they are kidded; for a good crop depends more on this, than on the quantity of haulm. If they are kidded all the way up from the bottom to the top, and the kids in general contain five or ſix beans, we may expect to reap largely; but, if otherwiſe, the reverſe. A dry ſummer is not ſo good for beans as a ſhowery one; for, in very dry weather, the ſtalks are ſhort and ſlender, and the crop often blighted; that is, covered with a black fly; in this caſe, they muſt take their chance, for rain only can recover them.

They are ſeldom ripe enough to cut till September; but the proper time may eaſily be known by examining them. When the kids are black, and begin to open at the end, they ought to be cut; and though throughout the field ſome of the kids be not ſo black as others, this ſhould not prevent us; for they will ripen and harden after they are cut, by ſetting the ſheaves upright, and leaving them out in the field for a week or ten days. If they are cut before they are ripe, they will ſhrivel: and if too ripe, they will ſhed conſiderably in the cutting. Should this laſt be the caſe, they ſhould not be cut in the middle of the day, but in the mornings and evenings only, when the dew is on them. They ſhould not be pulled up by the roots, for you would thus carry a quantity of dirt into your threſhing floor, but cut off with a hook, as they reap wheat.

An acre of land proper for beans, will produce, with good culture, from two quarters and a half (that is, half a load) to five or ſix quarters; but three quarters and a half, or four quarters, may be reckoned a very good crop. Rather a greater quantity of tick-beans may be got from an acre of ground than horſe-beans; but horſe-beans bear always a better price, ſo that the value of each crop will be much the ſame. In purchaſing beans, particularly for feed, care ſhould be taken that they are hard, and not ſhrivelled; and the ſmaller the bean, the better, as there are a greater quantity in the ſame meaſure. Beans will generally fetch a greater price after they have lain in the ſtack eight or nine months, than if they are threſhed out before Chriſtmas, as they are then harder and better for feed.

The following is an eſtimate of an acre of horſe-beans, ſuppoſing them to have been ſet.

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes	1	0	0
Team, &c.	1	0	0
Two buſhels and a half of ſeed, at four ſhillings	0	10	0
Setting, at eight-pence a peck*	0	4	0
Guarding them from the crows†, and water furrowing	0	1	0
Hoeing twice; the firſt time five ſhillings and ſixpence; the ſecond, four ſhillings and ſixpence	0	10	0
Cutting	0	6	0
Carrying and ſtacking	0	1	4
Thatching	0	2	0
Threſhing three quarters and a half, at one ſhilling and fourpence	0	4	8
	£3	19	0

PRODUCE.

	£.	s.	d.
Three quarters and a half, at thirty-two ſhillings	5	12	0
Expences	3	19	0
Profit	1	13	0

Where manure is laid on for any crop, it will add ſomething to the expence; as an additional hand or two muſt be employed to fill the cart, and ſpread the dung. The price of ſpreading, is generally one ſhilling per acre, and one ſhilling or eighteen-pence an acre may be reckoned for labour in filling.

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* *If the women cover in the ſeed, they expect one penny a peck more; this, therefore, ſhould be done with the barrow.*

† *I have mentioned here, guarding from crows, for it will be found neceſſary to employ a boy for eight or ten days for this purpoſe, while the ſeed lies uncovered in the ground, before it can be barrowed; and when the beans are coming up; as crows, at theſe times, are apt to devour them, and thus injure the crop.*

Mr. Young tells us, that, from the experiments he made, he finds, that by ſowing beans upon the ſame lands, year after year, each ſucceeding year will produce a better crop than the year before, even though no dreſſing be put upon the land; that where the firſt year produced only three quarters and a half, the third year produced five quarters. This he attributes to hoeing and deſtroying the weeds, which was done three or four times in each year, and the tops of the beans being cut off, juſt as they were going to bloſſom. It may be worth the trial on ſmall ſpots of ground, but it is a thing never done by farmers.

I hold trench-ploughing to be good in the culture of beans, where the depth of mould will admit of it, as it gives the plant room to ſtrike deeper than in the ordinary method of ploughing, but I am no advocate for turning up the gravel or clay among the mould.

CHAP. VIII.

OF PEAS.

PEAS generally flouriſh moſt in light, dry, ſound land, but tolerably good crops may be procured on cold, brick earth, loams, or clays.

There are various ſorts of peas, but thoſe uſually ſown by farmers, are white peas and hog peas; the firſt is well known, but, of hog peas, there are alſo two or three ſorts, grey, dun, blue, &c.

There being other crops that pay better than peas, farmers generally ſow them on poor land, ſuch as is grown foul, and perhaps out of heart; but, like every other crop, I am perſuaded,

ſuaded, they would pay for a certain degree of cultivation; but over-dreſſing would make the haulm grow large and rank, and the crop will ſuffer by it. Wet ſeaſons are always prejudicial to peas; for the above reaſons, peas are not always a part of the farmer's crop.

In light land, drilling them may be a good method, as, in that caſe, if neceſſary, they can be better hoed, and a future crop alſo will receive a benefit from ſuch hoeing; but in ſtrong ſtiff lands, they muſt be ſown broad-caſt. Indeed, ſowing broad-caſt will, all things conſidered, produce a greater quantity at harveſt, than drilling; and, as it is attended with leſs trouble and expence upon the whole, perhaps it may be as well, if not better.

The quantity ſown on an acre of ground of the white peas, is generally three buſhels; but Mr. Young, from his experiments, finds, that four buſhels and a half of white peas, and five buſhels and a half of hog peas, are a more proper quantity; for, in wet ſeaſons, if a quantity of ſeed ſufficient to ſtock the land be not ſown, a proportion of weeds will occupy their place, and where farmers do not hoe their peas, a thick crop is neceſſary to cover the ground, and ſmother the weeds.

The cuſtomary time of ſowing, is about the middle of March, and that of cutting, in Auguſt. When they begin to ripen, it will be neceſſary to ſtation a boy in the field to frighten away pigeons, and other birds, otherwiſe they will carry away half the crop. The ſame attention muſt be paid to the time and manner of cutting, as was pointed out in the caſe of beans. A good ſample of peas, is, when they are not ſhrivelled, but look large, plump, and fair.

An eſtimate of an acre of broad caſt peas.

EXPENCES.	£.	s.	d.
Rent, tythe, and taxes . . .	1	0	0
Team, &c.	1	0	0
Carried over	2	0	0

	£.	s.	d.
Brought over	2	0	0
Two buſhels and a half of ſeed, at four ſhillings	0	10	0
Weeding and water-furrowing	0	2	0
Frightening birds	0	2	0
Hoeing	0	5	0
Cutting	0	3	6
Carrying in	0	2	0
Threſhing three quarters, at one ſhilling and two-pence	0	3	6
	£3	8	0

PRODUCE.

	£.	s.	d.
Three quarters, at thirty-two ſhillings per quarter	4	16	0
Expences	3	8	0
Profit	1	8	0

For the culture of peas, the land ſhould undergo three or four ploughings, and many harrowings, to bring it into as fine a tilth as poſſible.

Drilled peas, like beans, ſhould be twice hoed, which will be an additional expence of five ſhillings an acre, but a future crop will be benefited by it.

CHAP. IX.

OF TARES.

TARES are cultivated for three or four purpoſes. Some ſow them for the ſeed; others to cut green for horſes and other cattle; ſome make the haulm into hay, for winter feed, and other feed it off with ſheep and lambs in the ſpring In whichever way, however, the crop is conſumed, though it ſeldom forms part of a farmer's regular courſe of crops, it is, nevertheleſs, far from being an unprofitable one.

There are two ſorts, winter tares, and ſpring tares; the firſt are a hardy kind, and generally ſown before or about Michaelmas, to cut green for horſes in the ſpring, or ſtand for ſeed.

If they are ſowed in the month of Auguſt, and deſigned for ſeed, they will be fit to cut early in the month of Auguſt following, after which there will be ſufficient time to prepare the land for wheat; or when the tares are carried off the ground, it may be ploughed up, and ſown with turneps, by which means two crops are produced from the ſame ground in one year.

But the beſt farming is to ſow them at Michaelmas, or not later than the ſecond week in October; about two buſhels, or rather better, to an acre, and that upon land that has been fallowed and dreſſed: from ſuch fallow and dreſſing, may be expected a very luxuriant crop, that will riſe above, and ſmother every weed that might either be carried upon the ground in the dreſſing, or not be deſtroyed by the fallow. This crop ſhould be cut for hay, in the beginning of June; when, after two ploughings, the land may be ſown with turneps, and being eaten off by ſheep at Michaelmas, the ground is in the beſt order that can be for a crop of wheat, as it will then be perfectly clean, and in good heart; for the dreſſing the ſheep leave, will amply compenſate for the crop of tares, which not being ſuffered to ſtand for ſeed, will not draw the ground, but leave it in the fineſt order. Thus, alſo, two crops will be gained in one year, without injuring the land.

Whether ſpring tares are ſown for hay, or for ſeed, the quantity of ſeed, and time of ſowing are the ſame. As one great advantage in cultivating this pulſe, is bringing the ground into fine order for wheat or barley; it would be well if the land were dreſſed for it, and care taken to ſow it early, that there may be a thick crop, ſufficient to cover the ground and ſmother the weeds. March is the proper time for ſowing, and the quantity, two buſhels and a half per acre. Once or twice ploughing will do for tares, which ſhould be rolled after they are well harrowed in. They require no farther trouble till harveſt, except cutting out the thiſtles, if any ſhould riſe, for every other weed a thick crop of tares will deſtroy; and ſuch is the advantage of a thick crop, that if you cut for hay, they admirably prepare the ground for a crop of wheat, breeding that putrid fermentation in the ſoil, which renders it as fertile and as mellow, as after the beſt fallow.

If tares are deſined for hay, the time of cutting them is when they are in full bloſſom. If they are left longer, they draw the land too much, and make not ſuch good hay as when they are in the higheſt ſtate of ſucculency. Though ſome contend, that the hay will prove heartier food, if they ſtand to pod, and the pods to fill; that in this caſe, horſes eating ſuch hay, will require leſs corn. This I believe to be the caſe, but I am a ſtrong advocate for keeping the ground in good condition. If the crop be got in without rain, tare-hay is better than any common hay, but rain injures it a great deal.

The following are the expences and profits of an acre made into hay.

EXPENCES

	£.	s.	d.
Rent, tythe, and taxes . . .	1	0	0
Team, &c.	1	0	0
Seed, two buſhels and half, at four ſhillings and ſixpence . . .	0	11	3
Weeding, perhaps, or water-furrowing .	0	1	6
Mowing	0	1	9
Making, &c. . . .	0	3	6
	£2	18	0

PRODUCE.

	£.	s.	d.
Two loads and a half of hay, at thirty-five ſhillings	4	7	6
Expences	2	18	0
Profit . . .	1	9	6

In farms where there is not a ſufficiency of graſs land, a field or two of tares for hay, muſt be very advantageous, eſpecially as they leave the land in better ſtate than when they were ſown. Beſides, if they are not to be followed by a crop of wheat, the land may be immediately ploughed up, and ſown with turneps, which will produce an additional profit of near thirty ſhillings an acre, as may be ſeen in the chapter on Turneps, and leave the ſoil in fine ſtate the next year, for barley, oats, or any other ſpring crop.

The following eſtimate ſuppoſes the tares to ſtand for ſeed.

EXPENCES.

	£.	s.	d.
Rent, &c. . . .	1	0	0
Team, &c. . . .	1	0	0
Seed, as before . . .	0	11	3
Weeding, &c. . . .	0	1	6
Mowing	0	1	6
Getting in . . .	0	1	8
Threſhing two quarters, at two ſhillings and fourpence . . .	0	4	8
	£3	0	8

PRODUCE.

	£.	s.	d.
Two quarters of tares, at thirty-ſix ſhillings .	3	12	0
Expences . . .	3	0	8
Profit, beſides the haulm . .	0	11	4

Now, on the faireſt calculation, here is evidently a loſs of eighteen ſhillings and two-pence between the two profits, which might have been avoided, had the tares been cut for hay; beſides the injury the ground receives by a ſeed-crop, and the loſs of ſo much dung, as cattle eating that hay upon the farm would have yielded. An acre may poſſibly produce two quarters and a half, which is an additional profit of about ſeventeen ſhillings; but this is not, in my opinion, an adequate compenſation for drawing and impoveriſhing the land.

CHAP X.

OF TURNEPS.

TURNEPS, like tares, is one of thoſe meliorating crops, whoſe culture cleans the land, and, at the ſame time, enriches it. They thrive beſt in light ſoils, but ſucceed tolerably well on ſtiff ones. Very ſtrong clays are the only ſoils in which they will not grow to advantage.

Farmers conſider a crop of turneps as a ſummer fallow, and as the beſt preparative for either wheat or barley. To obtain a good field of turneps, they plough the land four or five times, harrow it till it is as fine as they can make it, and then dreſs it. All this is done with the ſame view that recommended tares, viz. to procure a luxuriant crop, that will ſmother the weeds which the dung carries into the field with it, in order that the ſucceeding crop, whether of wheat or barley, may be clean and plentiful. Beſides, as this crop is fed off by ſheep, the better it is, the longer will it maintain a given number of ſheep, and of courſe the greater quantity of dreſſing ſuch ſheep will leave behind them. It is generally a loſing crop for that year, but the advantage hereafter reaped, amply repays the loſs.

The moſt proper time to ſow them, is about Midſummer, or ſoon after, ſo that if the ſpring be fine, there is ſufficient time to clean the ground. Though we wait a week or two for it, a dripping time is beſt for ſowing, for, without ſome rain, the ſeed may not grow ; in very dry ſeaſons, as ſoon as they are out of the ground, the fly is apt to deſtroy them ; and, when this is the caſe, we have no other reſource than to harrow the land, and ſow it afreſh.* If they eſcape the fly, as ſoon as they put forth the rough leaf, they ſhould be hand-hoed with a nine-inch hoe, cutting them up where they are too thick, and leaving them about nine inches diſtance from each other. About a month after, they ſhould be hoed a ſecond time, to deſtroy the weeds: by this time, they will be of ſufficient growth to keep the weeds down, and ſmother them. They require no other care till they are either drawn for cattle, or eaten off by ſheep. One pound of ſeed per acre is the quantity uſually ſown: and as there are two or three ſorts of turneps, ſome prefer the green round, and others the tap-rooted, as growing to a larger ſize. In a tolerable good crop, the average weight of an acre of turneps, is about thirty or thirty-two tons.. They rather improve in weight from December to January, but decline in weight from January to March. In my neighbourhood, where farmers have not a ſufficient ſtock of ſheep of their own, they ſell their turneps to thoſe who have ; and the price of an acre varies in proportion to the quantity of ſeed there is, from twenty-five ſhillings to forty ſhillings; and they never think of diſpoſing of their crop any other way. Thoſe who draw them, to fatten cattle, may poſſibly turn them to greater advantage; Mr. Young ſays, double; but, as every farmer has not money to buy ſtock to fatten, he is obliged to give up that thought, and content himſelf with enriching his land, by folding of ſheep upon it. For ten acres of turneps would require a ſtock of one hundred and twenty-four pounds in cattle, to conſume them.

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* *Mr. Vagg, in* 1788, *obtained a very large Subſcription, for communicating a method he had of ſaving them from the fly. He ſays that it is not a fly that abſolutely kills the young plants, but a whitiſh ſlug, that devours them in the nights ; and that the mode of deſtroying this inſect, is by rolling the field in the night, as ſoon as the ſeed-leaf appears, with a barley roller,* 18 *or* 20 *inches in diameter ; and after two or three days, rolling it a ſecond time in the night, unleſs a day or two after the firſt rolling, the plants ſhall look ſtrong and vigorous. The tread of the horſes will not injure the crop. It will do more good than harm.*

For curioſity, let us ſee what is loſt on an acre of turneps well ſold.

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes . . .	1	0	0
Team, &c. . . .	1	0	0
Filling dung-cart, and ſpreading, ſuppoſe .	0	2	6
Seed, one pound . . .	0	0	6
Twice hoeing; firſt time ſix ſhillings, ſecond four ſhillings . . .	0	10	0
	2	13	0
Suppoſing the acre to ſell for . .	1	15	0
The loſs is	0	18	0

But even here is a gain of twenty-four ſhillings and ſixpence, deducting ten ſhillings and ſix pence, the expence of the turneps, from one pound, fifteen ſhillings, (the price they ſell for) when we conſider that, without this crop, the land would have lain idle; and, when we take into the conſideration the advantage the next crop or two receive, from clean enriched land, we ſhall have no reaſon to complain.

	s.	d.
In fattening lean ſtock, a ton weight of turneps is worth about . . .	2	2
In feeding lean ſtock, about . .	2	6
In feeding ſheep on the land . . .	1	0

Stall-fed cattle, beſides a rack of hay, will daily eat, in winter, between a third and fourth part of their own weight in turneps.

CHAP.

CHAP. XI.

OF CLOVER.

THE introduction of clover has turned out a great treaſure to the farmer, it being one of thoſe crops that pays well for the tillage; and, at the ſame time, enriches and meliorates the land. Its profits are reaped three ways, being either fed, cut for hay, or ſuffered to ſtand for feed. If the farmer has ſufficient ſtock to eat his clover green, or has money to purchaſe ſuch a ſtock, he will reap a double advantage by ſo doing; for an acre of clover, fed off green, will maintain a given number of cattle, much longer than it would, if made into hay. Beſides, as in this caſe it does not ſtand to flower, it draws the ground leſs, and the dreſſing left by the cattle is no inconſiderable advantage. If cattle are turned in, in the beginning of June, three acres of clover (ſuppoſing theſe three acres, if cut and made into hay, to produce four loads and a half, cut out of the rick) will fatten and maintain nine horſes and four cows, for four weeks; which, at four ſhillings a horſe, and two ſhillings and ſix-pence a cow, per week, amounts to nine pounds four ſhillings. Now, in this time, they would eat ſix loads of hay, worth twelve pounds; or, were theſe three acres cut, and made into hay, reckoning the hay at forty ſhillings a load, and deducting ten ſhillings an acre for mowing, making, thatching, ſtacking, and binding, it leaves a profit only of ſeven pounds ten ſhillings; and, ſhould a purchaſer require it to be carried ten miles, ſuch carriage would be two pounds five ſhillings, and reduce the profit to five pounds five ſhillings. But, was ſuch a firſt crop of clover (for I am now only ſpeaking of the firſt cutting. I ſay, was ſuch a firſt crop cut day by day, carried into the ſtable, or farm yard, and given to horſes or cows there, it would turn out ſtill more advantageous; for it would maintain twenty horſes for four weeks; (I ſpeak this from experience) which twenty horſes, in the ſame time, would conſume eleven loads of clover hay, worth twenty-two pounds. Here, indeed, the dreſſing is not laid upon the land; but the horſes would in that month, if littered down with about ſeven loads of ſtraw, yield forty loads of dung, which would dreſs four acres of land well; a circumſtance that would amply pay for cutting and carting home, and carrying the dung out again upon the land. Beſides, a team ſo kept upon green meat, would require very little corn; half the quantity would do; an object of ſuch importance to the farmer.

Let us take a ſecond view of this.

Three acres of clover, fed off by cattle on the land.

PROFIT.

	£.	s.	d.
Nine horſes keeping for four weeks, at four ſhillings each . . .	7	4	0
Four milch cows ditto, at two ſhillings and ſixpence	2	0	0
	9	4	0

or 3l. 1s. 4d. per acre.

The dreſſing theſe will leave, will be equal to about two loads of dung per acre, and the land not exhauſted.

The ſame crop mowed the firſt time for hay.

EXPENCES.

	£.	s.	d.
Mowing	0	6	0
Making and ſtacking . .	0	12	0
Thatching, on an average . .	0	3	0
Carried over	1	1	0

	£.	s.	d.
Brought over	1	1	0
Binding four loads and a half, at two ſhillings	0	9	0
Carrying to the purchaſer	2	5	0
	3	15	0

PRODUCE.

	£.	s.	d.
Four loads and a half, at forty ſhillings	9	0	0
Expences	3	15	0
Profit	5	5	0

or 35s. per acre.

No dreſſing here, and the land exhauſted.

The ſame crop cut green, and carried into the ſtable.

	£.	s.	d.
Twenty horſes kept for four weeks, which, if fed on dry meat, would eat eleven loads of clover hay, worth forty ſhillings a load, is equal in value to	22	0	0
Forty loads of dung, at five ſhillings	5	0	0
	27	0	0
Extra expences in carrying the dung on the land, and ſpreading it on four acres (the team is reckoned at large upon the farm)	0	8	6
Profit	26	11	6

or 8l. 17s. 2d. per acre.

Here alſo the land is not exhauſted, but exceedingly well dreſſed. I have reckoned nothing for labour in cutting, as the carter and boy will do it: nor have I brought ſtraw into the account, as the farm will produce ſufficient litter, that could not be ſold, bean haulm, fern, &c. Nor have I here eſtimated the ſaving in the corn given to the horſes, which is conſiderable; nor either rent or team, theſe being equal in every caſe.

While

Whilſt I am upon the article of clover, and mentioning the feed of it for cows, I muſt not omit the danger of turning them in, while it is young and high. Cows are internally differently formed from horſes; a cow has not only a ſtomach, but a paunch, deſigned by nature as a receptacle for her food. Here ſhe depoſits it for awhile, without maſtication; and when ſhe has eaten ſufficient, ſhe, at her leiſure, brings it a ſecond time into her mouth, chews it, and conveys into her ſtomach, where it is digeſted, and carried off. Clover is a very looſe vegetable, full of air, particularly when young, and in ſhowery weather; and as the paunch has not the ſame digeſtive power with the ſtomach, checking that fermentation that lets looſe the air; if ſhe eats heartily of young clover, and fills her paunch by drinking ſoon after; when fermentation takes place, and the air is let looſe, ſhe will ſwell prodigiouſly; and from ſuch ſwelling, the vital ſyſtem will be impeded, the circulation of the blood ſtopped, and the animal will die in fifteen minutes. If ſhe has not filled herſelf too full, driving her and hurrying her about, will often relieve her; but ſhould ſhe have overloaded her paunch, and drank upon it, there is no remedy but one, which, though ſevere, is generally ſafe and effectual (having had occaſion to try it, I ſpeak from experimental knowledge); it is, that of making an inciſion with a penknife through the flank into the body of the paunch, and introducing the pipe of a funnel into the orifice, thus letting out that air, that otherwiſe would deſtroy the animal. By keeping the hole open, till the complaint ceaſes, we remove the danger; and by piercing the hide with an awl, ſewing up the wound, and the application of a plaiſter, it will ſoon heal. The place to make the inciſion, is in the fleſhy part of the left ſide or flank, at an equal diſtance from the ſhort ribs, the ſpine of the back, and the hip bone; it ſhould be pierced till the air iſſues out freely. Sheep are formed like cows; of courſe, the ſame caution ſhould be taken with them. But let the bulk of the graſs be firſt eaten down by horſes, and there is no danger; or, it is ſaid, if they are not turned in while the dew is on the graſs, it may be done with ſafety.

Clover is a fine thriving food for hogs: where there is a pond in the field, which they can always have recourſe to, I do not know any better way of diſpoſing of the crop. But water is ſo neceſſary, that without it, it is in vain to think of it. Any part of a field may be hurdled off with gate-hurdles; and the only trouble is, taking good care that they do not break out. Some are apt to think hog-dung prejudicial; but it is an erroneous notion. Being very full of ſalts, where the land is richly dreſſed with it, the firſt crop may be rank, but future crops will feel its effects for years. I am of opinion, that there cannot be more profitable huſbandry, than by purchaſing ſows forward with pig, turning them into clover, ſuffering them to pig there, and continue with their pigs till they are three or four months old, and then ſelling them for ſtore. An acquaintance of mine told me, that having once five acres of clover, a good crop, with a pond in the field, and well fenced in, he purchaſed in May ten ſows of the large breed, ready to pig, which coſt him thirty pounds; that he turned them into this field about the middle of the month, kept them there till the middle of September, and then ſold them; that the ten ſows brought him ninety-eight pigs, which he ſold for fifteen ſhillings each, and the ſows for two pounds ten ſhillings each; that they folded the land like a flock of ſheep, and ſo richly manured it, that that it wanted no dreſſing for near twenty years. After the clover, he ſowed it with wheat, which was ſo rank, as to fall, and turn out of no value; but the year following, he ſowed it with wheat again, and had a prodigious crop.

Suppoſing five acres under this management.

EXPENCES.

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes	5	0	0
Team, &c.	5	0	0
Seed	1	2	6
Ten ſows	30	0	0
	41	2	6

PRODUCE.

	£.	s.	d.
Ten ſows, at fifty ſhillings	25	0	0
Ninety-eight pigs, at fifteen ſhillings	73	10	0
	98	10	0
Expences	41	2	6
	57	7	6

or 11l. 9s. 6d. per acre.

The following is an eſtimate more to be relied on; that of an acre hurdled off and fed, from the firſt week in May, to the laſt in September.

EXPENCES.

	£.	s.	d.
Rent, &c.	1	0	0
Team, &c.	1	0	0
Seed, nine pounds, at ſix-pence	0	4	6
	2	4	6

PRODUCE.

	£.	s.	d.
Keeping four hogs, eight months old, at four-pence a week, twenty-eight weeks	1	17	4
Four ditto, ten months old, at ſix-pence	2	16	0
Two heifers kept ſix weeks, at one ſhilling each	0	12	0
Two horſes kept ſix weeks, at three ſhillings each	1	16	0
	7	1	4
Expences	2	4	6
Profit	4	16	10

beſides enriching the ground.

Clover, in general thrives beſt on light barley land. It is uſually ſown with the ſecond crop after a fallow, with either barley or oats, but ſometimes with wheat; and the richer the land, the better the crop. After the barley or oats are ſown, and harrowed in, they cuſtomarily ſow the clover, ſometimes by itſelf, particularly if it be deſigned for ſeed, and ſometimes mixed with artificial graſſes for hay. When ſown it ſhould be rolled. If clover is ſown with a wheat crop, it ſhould be put into the ground in the month of March, before the wheat is too high. This is done by harrowing the ground, ſowing, and rolling it. The harrows will not damage the wheat. But wheat is a crop that does not afford it ſufficient ſhelter; of courſe, it is bad huſbandry.

All things conſidered, it is much more advantageous to ſow clover with a firſt crop after a turnep ſeaſon, or a fallow, than with the ſecond, as is commonly done; for, the land being then clean, and in good heart, the crop will be conſiderably greater, and the clover will ſtand a ſecond year very well; eſpecially if, in ſuch ſecond year, aſhes, or a light dreſſing of dung, be beſtowed on it. Indeed, clover is one of thoſe crops, which will pay for very ample manuring; but is, at the ſame time, liable to be injured by unfavourable weather; a dry ſeed time, or a wet harveſt. In dry ſummers, though the crop be ſmall, it will weigh heavy, and cattle will thrive on it better than when the crop is larger, it being ſweeter, and fuller of nutriment.

The quantity of ſeed ſown on an acre of ground, is generally from nine pounds to fourteen; the average quantity ten pounds. But, Mr. Young aſſerts, from a variety of experiments that he made, that in poor land twenty pounds, and in clean rich land, fifteen pounds an acre, is the moſt advantageous quantity; as in rich land the roots will ſpread more, and leave leſs room for weeds, or natural graſs.

There are ſeveral ſorts of clover, viz. broad clover, which bears a red flower; the white Dutch, which bears a white flower; and the trefoil, which bears a yellow one. The firſt is what farmers generally ſow, as growing higher, and producing a larger crop. The white Dutch, and trefoil, are better for laying down lawns and meadows, as they will matt, and grow thicker at bottom; but they are not profitable to cut for hay. There is alſo another ſpecies of clover, called cow-graſs, from its being leſs liable to ſpring cows that feed on it. This laſt, though ſown in March, makes but little appearance till Midſummer, and can be cut but once; but yet grows to a great height, and produces in general large crops.

The profits of a crop of clover, as I ſaid before, are reaped three ways; by feeding it with cattle, cutting it for hay, or ſuffering it to ſtand for ſeed. I have already pointed out the profits ariſing from feeding; let us next ſee what it will produce when cut for hay; and in this eſtimate, I will ſuppoſe an equally good crop with that I conſidered before as fed, viz. to produce two loads and a quarter per acre, at the two cuttings; I mean two loads and a quarter out of the rick; for clover is a graſs that will loſe conſiderably in its weight by drying.

An eſtimate of an acre.

EXPENCES.

	£.	s.	d.
Rent, &c. . . .	1	0	0
Team, &c. . . .	1	0	0
Seed, ten pounds . . .	0	5	0
Mowing . . .	0	1	9
Making and ſtacking, &c. . .	0	4	0
Mowing, making, &c. the ſecond cut .	0	5	9
Binding two loads and a quarter .	0	4	6
	3	1	0

PRODUCE.

	£.	s.	d.
Two loads and a quarter, at thirty-five ſhillings	3	18	9
After-feed . . .	0	10	0
	4	8	9
Expences	3	1	0
Profit	1	7	9

A load of clover is, in ſome places, generally five ſhillings under the market price of meadow hay; in others five above the price; but ſhould hay be dear, this crop will be more profitable.

It ſhould not be cut till it has done flowering, and begins to decay at the bottom; nor, ſhould it be over-dried in the making.

When deſigned for ſeed, it ſhould be firſt cut for hay, and eight or ten days earlier than when the ſecond cut is made for the ſame purpoſe. A ſeed-crop is a very precarious one. A wet harveſt will deſtroy it, and, if it does not flower well, the quantity will be ſmall. The ſecond growth generally determines the farmer in this matter. If the herbage be large, it ſhould not be left for ſeed, as it will be apt to fall before the ſeed is ripe, and damage the crop. When the herbage is ſhort, and bloſſoms full and large, there is a good proſpect of reaping a profitable harveſt. In this caſe, it ſhould ſtand till it is quite ripe. Three buſhels and a half of ſeed from an acre, is a good return.

EXPENCES.

	£.	s.	d.
Rent, &c.	1	0	0
Team, &c.	1	0	0
Seed, ten pounds, at ſix-pence . .	0	5	0
Mowing, making, ſtacking, &c. the firſt cut for hay	0	5	9
Carried over	£2	10	9

	£.	s.	d.
Brought over	2	10	9
Mowing, &c. the ſecond time for ſeed .	0	3	9
Threſhing three buſhels and a half, at five ſhillings per buſhel	0	17	6
Binding one load and a half of hay .	0	3	0
	£3	15	0

PRODUCE.

	£.	s.	d.
One load and a half of hay, at thirty-five ſhillings	2	12	6
Three buſhels and a half of ſeed, each buſhel containing ſixty-five pounds, at ſix-pence per pound	5	13	9
	8	6	3
Expences	3	15	0
Profit	4	11	3

I have rated it here at ſix-pence per pound: it ſometimes ſells for more; but, often ſo low as three-pence.

A buſhel of ſeed generally weighs from ſixty to ſeventy pounds, according to the ſize of the grain. The ſmaller the ſeed, if good, the better, and the heavier the buſhel weighs.

When a crop has ſtood for ſeed, it will produce but a ſmall crop of clover the next year; it ſhould, therefore, be ploughed up, and ſown with wheat. Farmers, in general, ſay the ground is in as good heart for wheat after it has ſtood for ſeed, as if it was cut for hay; but I am of a different opinion. When threſhed, the chaff and haulm (if it may be called ſo) will ſerve to fodder cattle in the winter.

CHAP. XII.

OF THE COURSE OF CROPS.

THE ſucceſſion of crops is a principal matter to be attended to. Different plants draw different nouriſhment, and from different parts of the land. Thoſe with horizontal roots from one part, thoſe with tap-roots from another. Some require cleaner ground than others, and ſome, land in better heart. Again, ſome ſoils are better adapted to certain crops than others. All this obliges the farmer to ſtudy a little the nature of his land, and the method of cropping it . and expeperience has taught him, that it is moſt profitable, after the ground has been well fallowed and cleaned, to purſue the following method of cropping.

On ſtrong ſtiff lands, either

1. Wheat.
2. Oats and Clover.
3. Clover.
4. Beans or Wheat.
5. Turneps, or a *fallow*.

or, 1. Tares.
2. Wheat.
3. Oats and Clover.
4. Clover.
5. Clover.
6. Beans or Wheat.
7. Turneps, or a *fallow*.

or, 1. Beans.
2. Oats and Clover.
3. Clover.
4. Wheat.
5. Peas.
6. Turneps, or a *fallow*.

Where the land is naturally rich, or made ſo by ample and frequent dreſſings, a ſummer fallow may not be neceſſary, which is deſigned only to reſt the ground, and deſtroy the weeds. Dung naturally fills the land with weeds; but a crop of turneps or tares will ſmother them, and render it clean again; for this reaſon, I recommend dreſſing the land for turneps, or tares, in preference to wheat.

Mr. Young tells us, that he has tried beans upon the ſame ground for three or four years ſucceſſively, and had, every future year, a better and a better crop. This he attributes to hoeing the land two or three times in the courſe of the ſummer. There is no reaſon to doubt his veracity, but it is not the common practice of farmers; indeed, where the ſoil is naturally

turally rich, where it has been dreſſed for wheat, and the crop has been lodged from its luxuriancy, farmers have ſowed the ſame land with wheat again the next year, and found their account in it; for, if land be too rich for wheat, it is apt to lodge with wind or heavy rains, and be conſiderably damaged.

On light ſoils, the courſe of crops is varied, ſuch as follows:

1. A *fallow.*	or,	1. A *fallow.*
2. Wheat.		2. Barley and Clover.
3. Barley and Clover.		3. Clover.
4. Clover.		4. Wheat.
5. Oats, Rye, or Peas.		5. Oats or Rye.
6. A *fallow* again, or Turneps		6. Peas.
		7. A *fallow.*

If the land be naturally poor, the more it is reſted the better; of courſe, the longer it lies under clover, the larger will be the crop that follows it. Indeed, as poor land is generally low rented, laying it down in paſture is the moſt profitable way of farming it; eſpecially if dreſſing cannot be readily procured. By feeding, land is annually manured and enriched; and, at the ſame time, pays no great tythes; a circumſtance very pleaſing to the occupier, where tythes are paid in kind. Inſtead of a fallow once in ſix or ſeven years, it will be found frequently neceſſary to let poor land lie a year uncropped, once in three or four years; for if (in the farmer's phraſe) it be over-driven, without a much greater quantity of manure than he generally has to beſtow upon it, it will often produce little more than the ſeed, be the ground ever ſo clean.

CHAP. XIII.

ON THE PROFITS OF A FARM IN GENERAL, AND GRASS LAND IN PARTICULAR.

LET us now recapitulate the profits on the different crops I have mentioned; and it will ſhew the fair advantage a gentleman may expect to reap from a farm of one hundred and fifty acres of arable land, under good management. As we ſhall take a view of ſeven ſucceſſive years, in the courſe of which a round of crops takes place, it is immaterial whether we ſuppoſe the whole farm cropped the ſame year with the ſame kind of corn, or with different ſorts: the produce at the ſeven years end will be the ſame.

We will begin with ſtiff land, on which the courſe of crops will be, after a fallow, 1. Tares. 2. Wheat. 3. Oats and Clover. 4. Clover. 5. Clover. 6. Beans. 7. Turneps.

	£.	s.	d.	£.	s.	d.
1. The profit of 150 acres of Tares cut for Hay — at	1	9	6	is 221	5	0
2. Ditto of 150 acres of Wheat, at	2	17	6	—431	5	0
3. Ditto, ditto — Oats, at	2	7	4	—355	0	0
4. Ditto, Clover cut for Hay, at	5	5	0*	—787	10	0
5. Ditto, Clover fed, at	5	5	0	—787	10	0
6. Ditto, — Beans, at	1	13	0	—247	10	0
				2830	0	0
7. Loſs on 150 acres of Turneps fed off by ſheep, at 18s, ———				135	0	0
Profit				2695	0	0
The waſte corn at the barn door will yield in poultry 10l. a year; which, in ſeven years, will give a profit of ———				70	0	0
Total profit				£.2765	0	0

Divide then 2765 l. by 7 years, and it will appear, that a farm of 150 acres will yield an annual profit of 395 l. but, if the land be naturally poor, and it be neceſſary to make the ſeventh year a fallow; inſtead of 135 l. loſs on the turneps, we muſt reckon the loſs of rent and team, which will be 300l.

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* *In the Chapter on Clover, I have pointed out, that ſuch a crop may be made to produce a larger profit than five guineas an acre, but I have taken it here at a medium value.*

this will make a difference of loſs to the amount of 165 l. and reduce the 2765 l. to 2700 l. which, divided by 7, leaves the annual profit only 385 l. 14 s.

Now, ſuppoſing the farm to conſiſt of light land, we muſt crop it as follows, after a fallow. 1. Tares. 2. Wheat, 3. Barley and Clover, 4. Clover, 5. Peas, 6. A fallow. Then

	£.	s.	d.		£.	s.	d.
1. The profit of 150 acres of Tares cut for hay, at	1	9	6	will be	221	5	0
2. Ditto, of 150 acres of Wheat, at —	2	17	6	——	431	5	0
3. Ditto, ditto, Barley, at	3	11	0	——	532	0	0
4. Ditto, ditto, Clover, at	5	5	0	——	787	10	0
5. Ditto, ditto, Peas, at	1	8	0	——	210	0	0
Profit on poultry for ſix years, at 10l. a year				——	60	0	0
					2242	0	0
6. Loſs on a fallow				——	300	0	0
				Neat profit	£.1942	0	0

1942 l. divided by ſix years, gives an annual profit of 323 l. 13 s. 6 d.

As moſt farms conſiſt of ſome meadow, take the following eſtimate of an acre,

EXPENCES,

	£.	s.	d.
Rent, &c. as before . . .	1	0	0
Team, &c. as before . . .	1	0	0
Mowing	0	2	6
Making and ſtacking . . .	0	5	0
Thatching	0	1	0
Binding one load and a half of hay . .	0	3	0
	2	11	6

PRODUCE.

	£.	s.	d.
One load and a half of hay, at forty-five ſhillings	3	7	6
Latter-math	0	15	0
	4	2	6
Expences	2	11	6
Profit	1	11	0

The ſtubbles, &c. of a farm of one hundred and fifty acres, will keep thirty ſheep all the year round, of courſe an additional profit ariſes of more than 40 l. a year.

In ſhort, a tolerable good farm, whether it conſiſts of a light or a ſtiff ſoil, will pay upon an average, with good management, forty or fifty ſhillings an acre; provided the occupier holds ſufficient land to employ his team fully.

The nearer a farm is to a market, and to the convenience of getting manure cheap, the more valuable it is.

Let me recommend it to every occupier of land, whether gentleman or farmer, to keep a regular account, debtor and creditor, not only of his farm in general, but of every field in particular, with a memorandum annexed of the time the ſeed was ſown, the harveſt reaped, the favourableneſs or unfavourableneſs of the ſeaſon, the quantity of ploughings the land received, the dreſſing given it, and every other particular. By a recourſe to this, at future times, he will be able to aſcertain the condition of his land, and how far he proceeded upon a good plan, or fell upon a wrong one; and, of courſe, whether he ſhould purſue the ſame method in future or not. By ſo doing, his buſineſs will become an amuſement, and his farm not only be profitable, but inſtructive.

The *following* is a ruled page for that purpoſe, and a copy of *ſuch* an account kept.

The

The Field called the Three Acres. 1798. Wheat.

REMARKS.

This Field, being very foul, and out of heart, was fallowed and dreſſed; eight loads to an acre: it received five ploughings, and was well harrowed, and the rubbiſh carted off.

Sown the firſt week in September; reaped the ſecond week in Auguſt.

Dry ſeed-time, but rather a wet harveſt; not houſed till the firſt week in September. Rather blighted under the weſt hedge.

N. B. The chaff eaten by the team.

Produced three quarters per acre.

EXPENCES.

	£.	s.	d.
Rent, tythe, and taxes, two years —	6	0	0
Team, two years —	6	0	0
Six buſhels of ſeed, at five ſhillings —	1	10	0
Labour in carting and ſpreading manure, &c. — —	0	7	6
Brining —	0	1	6
Reaping —	1	4	0
Additional labour in carrying —	0	3	0
Threſhing nine quarters at three ſhillings, cleaning included	1	7	0
Binding four loads and a half of ſtraw	0	4	6
Expences in ſelling	0	1	6
	£.16	19	0

PRODUCE.

	£.		d.
Nine quarters of wheat ſold at forty ſhillings	18	0	0
Four loads and a half of ſtraw, at twenty ſhillings per load	4	10	0
	22	10	0
Expences —	15	18	0
Profit —	5	12	0

or 1l. 17s. 6d. per acre.

CHAP. XIV.

ON POTATOES.

POTATOES now being a common crop with moſt farmers, it may not be unacceptable to the purchaſers of this volume, to have this mode of huſbandry pointed out.

Potatoes will grow almoſt any where, but generally thrive beſt on a light ſandy loam, not too dry or too moiſt; it ſhould be ploughed two or three times, and the deeper the better. To have a good crop, it will be neceſſary that the ground ſhould be in good heart. Juſt before the laſt ploughing, a good quantity of mellow dung ſhould be ſpread and ploughed in, at the rate of about ten loads an acre, or more. This ſhould be done, if the weather is mild, at the beginning of March, if likely to be froſty, it may be deferred a fortnight longer. And the moſt advantageous way of propagating them, is by planting them at great diſtances, and digging or horſe-hoeing the ground ſeveral times between them. Mr. Tull gives an example of it; in which the horſe-hoeing ſucceeded much better than dung, and without the expence of it. He ſays, a piece of ground was planted with potatoes, the greater part of it in the common way, but in one part worſe than the reſt; they had been ſet at a yard diſtance every way; the reſt of the ground was dunged; this poor part had no dung, but was ploughed deep at ſeveral times four different ways, ſo that the ground was ſtirred and broken thoroughly every where about the potatoes; and in this piece the crop was conſiderably better than where it was dreſſed; the plants, indeed, appeared weaker, but the roots were very large; whereas, in the dreſſed part, where the ground had not been ſtirred, they were ſcarce worth taking up.

In the laſt ploughing in March, the ground ſhould be laid even, and then the furrows ſhould be drawn at three feet diſtance from each other, and about ſeven or eight inches deep in the bottom of this furrow, the roots ſhould be laid at about 18 inches aſunder, and the furrow then covered in with the earth.

About the time when the ſhoots are expected to appear above ground, the land ſhould be well harrowed over both ways, in order to break the clods, render the ſurface ſmooth, and deſtroy the young weeds. The hoe-plough (which is a ſmall plough with one horſe) may be uſed to ſtir the ground, and deſtroy the weeds between the rows. If this latter proceſs is done two or three times in the ſummer, and the hand-hoe uſed between the plants, till they come to run and overſhadow the land, the crop will be the better; for nothing is ſo beneficial to them, as keeping the ground light about them and clean.

The haulm is generally killed by the firſt froſt in autumn; the roots ſhould then be taken up and laid by in a good quantity of ſand, or dry earth, under ſhelter, ſo as to be kept from wet and froſt.

The following is an eſtimate of a fair crop on one acre of ground:

	£.	s.	d.
Rent by the year, and taxes, ſuppoſe	1	0	0
Team	1	0	0
Additional labour in carting and ſpreading the manure	0	3	0
Nine buſhels of potatoes, at 1s. per buſhel	0	9	0
Cutting ditto at 1½ per buſhel . .	0	1	1½
Planting at 3d. per buſhel . .	0	2	3
Horſe-hoeing 3 times, at 1s. 6d. . .	0	4	6
Hand-hoeing twice, at 2s. 6d. . .	0	5	0
Digging up, at 1½ per buſhel, 400 buſhels	2	10	0
Carting away, &c. . . .	1	5	0
	£.6	19	10½

400 buſhels at 1s. per buſhel	£.20
Expences as above, ſay	7
Profit ———	£.13

The land now being in a good ſtate, is likely to produce a good crop of wheat, oats or barley, for potatoes is an ameliorating crop. At 9d. per buſhel, it would pay a farmer well, the produce then would be 8l. and as a buſhel weighs 56 lb. or better, given to pigs, cows, or horſes, it will pay 9d. a buſhel; but a good crop of potatoes will often yield 500 buſhels. The haulm is not here reckoned into the profit; this, if laid down in the yard, will pay for the carting home. In the Appendix the reader will ſee ſome obſervations on this huſbandry.

Captain Campbell, of the Warren Houſe, Cobham, gave me the following relation. Having purchaſed a ſmall farm, of which two acres, the ſoil light, had been an old lay, undreſſed for 18 years, and quite worn out, and having no dreſſing to ſpare, he had it dug up with ſpades, and planted it with potatoes on the ſurface, turning the land over them, firſt laying on the ſeed potatoes a little fern, to keep the earth looſe on them. The width of each bed of potatoes was 4 feet, and an interval of 4 feet between bed and bed; the plants were ſet in rows 9 inches a-part in the beds. This digging coſt him 40s. an acre: he employed men to earth them up all the ſummer, during their growth, and at Michaelmas dug them up. The produce of the two acres was 1200 buſhels, for which he was offered 1 s. 6 d. a buſhel, but did not ſell them, keeping them for his cattle: he ſaid the expence of ſeed, planting, digging, and taking up was 8 l. an acre; and had he ſold the 600 buſhels each acre produced, at 1s. 6d. per buſhel, the produce would have been 45 l. and deducting 8 l. expences, the profit 37 l. which doubled the fee-ſimple of the land: this great crop was attributed to the land having lain ſo long idle.

CHAP. XV.

ON HAYMAKING.

ALL graſs is ripe and fit to cut, when in full bloom. The beſt method of converting it into hay, is to have proper perſons who can be truſted, one to follow each two mowers, if the ſwarth is not more than one can ſpread; and let theſe perſons ſcatter the ſwarth well all over the ground, as ſoon as cut; not barely turn it over, but ſcatter it well. In this ſtate it ſhould remain the whole day.

The next day, as ſoon as the dew is off, it ſhould be turned again and again; and, before night, made up into graſs cocks, with the trenches and drains clean raked out.

The third day, if the weather permits, it ſhould be tedded and raked nearer together; for as it withers, it occupies leſs ſpace. It ſhould then be turned over and over in the day, and rowed in, that is, raked into rows long before evening, made into moderate large and round cocks, and the ground raked round them.

The fourth day, theſe cocks are again ſpread, turned, and if not dry enough, put into ſtill larger cocks, and the following day opened, turned, and carred to the ſtack.

When hay is ſufficiently made, it will rattle, that is to ſay, its criſpneſs will be heard in putting it together. If the crop is thin and the weather hot, it will be fit to carry the third day, and all the proceſs will be ſhorter.

By this mode of hay-making, as the mowers keep on cutting, all parts are going forward at the ſame time, and fewer mowers are required in proportion to hay-makers. The perſons employed ſhould be proportioned to the quantity of ground.

A good mower will cut an acre of graſs in a day, if it is not much lodged, two mowers two acres; ſo that one haymaker is ſufficient for two acres the firſt day, the ſecond day two acres will require two perſons, the third day it may require two, but one is ſufficient the fourth day.

Hay is always beſt that is ſufficiently dried, not to heat much in the ſtack, it then goes in green and comes out green. Such is the London hay, and that is ever eſteemed the beſt.

Meadows that are flowed, have a long ſtalky graſs full of joints when good, which retain the juices ſome time; if ſuch graſs be turned till theſe knots or joints are dry, in order to prevent heating, the other parts would be burnt up and ſpoilt. Such graſs ſhould be carried as ſoon as the leaves are well withered, it then heats in the ſtack, and when cut is chiefly of a pale dingy red colour, ſmells well, cattle eat it greedily, and it does double the good it otherwiſe would.

It is bad farming to make the latter-math into hay, let it be ever ſo long and thick; for be the weather as favourable as it may, ſuch graſs not having ſun and time to harden it, is, after all, ſoft and wooly, without nouriſhment; and though cattle are fond of it, it will ſtarve them. Beſides, it robs the land of the dreſſing it would receive by the urine and dung of cattle that feed it down.

The cloſer graſs land is fed down the better. Care ſhould be taken not to turn in horſes and cows after Chriſtmas, if the weather is wet, to poach it, but ſheep may follow heavy cattle, and their tread will work it, and do it much good.

Where meadows can be readily flowed, it is a great advantage to farmers to do it.

J. T.

CHAP. XVI.

ON BURNET.

AS Burnet is a good winter paſture, when paſture is wanted, produces a great crop, and continues long in the ground, it is well worth a farmer's while to try a few acres of it, particularly as it will flouriſh on light, ſandy, or chalky land.

It may be ſowed either in drills, or broadcaſt. It may be ſown with barley or oats, but it is not ſo ſtrong as if ſown alone. It riſes from 14 inches to 2 feet in height, and perfects its ſeed three times a year in June, July, and Autumn. The quantity of the firſt crop of ſeed is about 40 buſhels per acre; and its value, if ſold, 6d. per lb. Six ounces of ſeed fills a pint meaſure, of courſe a buſhel will contain about 24 lb. and is worth 12s. 40 times 12s. is 24 lb. But as it cannot always be ſold, it is neceſſary to know that the ſeed is nearly as good as oats for horſes, and they eat it well: thus an acre will at two mowings give as good as 10 quarters of corn, beſides three loads of hay; for horſes will eat the haulm, and thrive upon it with half the allowance of corn.

If ſown broadcaſt the quantity of ſeed per acre is from 12 to 14lb. but it is beſt drilled, when leſs than half the quantity will do. The land ſhould be clean, fine and in good heart: the ſeed ſhould be drilled in rows 10 or 12 inches a-part, and the ſeed ſet about ½ an inch deep. The time for ſowing it is in March or April, when the land is dry and the mould fine. Some ſay 4lb. of ſeed is ſufficient for an acre drilled, becauſe 4lb. of ſeed contains about 350,000 ſeeds, in the huſk of which, if only 2-3ds are ſaved, it gives about 5 good ſeeds to a ſquare foot; whereas one plant in a ſquare foot is enough.

When up, hoe it and ſet it out as turneps, to 10 or 12 inches apart, leaving the ſtem of the plant, and this in dry weather; hoe it again as the weeds riſe, all the ſummer. Deep hoeing, after the firſt ſummer, in broadcaſt hoeing, is unneceſſary. Burnet is a buſhy plant, ſpreads much, and no common weeds can thrive under it after the firſt year.

Horſes, black cattle, and ſheep, are fond of it; it will not hurt them like clover. It will cure ſheep of the rot; is excellent for milch cows, increaſing their milk, improving the quality, and making extremely fine butter.

It will ſcour ſome horſes, to others it is diuretic. It is wholeſome either green or in hay. In ſome lands it becomes diſagreeable to the taſte, and cattle will not eat it; the land ſhould be firſt tried therefore with a ſmall quantity.

On feeding burnet with ſheep, the ground fills naturally with trefoil; this laſt the ſheep will eat in preference, till they are uſed to the burnet. It is not liable to be injured by treading, of courſe will paſture heavy cattle, at any time of the year; nor can it be eaten down too cloſe. It is an evergreen, reſiſts cold, heat, and drought, and is ready for uſe at all times of the year. It vegetates in winter, even in froſt and ſnow, though at ſuch times ſlowly: it ſhould, therefore, not be fed down too late in autumn, but allowed to riſe ſix inches or more. In winter this will not waſte, but graſs and continue freſh, and will afford good feed in March and April, when feed is wanted. It ſhould be well dreſſed the end of January or beginning of February. That crop of burnet laſts longeſt which is conſtantly fed. If after it is fed down, it is rolled and laid ſmooth, it may be mowed in ſpring to ſoil cattle with. Indeed, if dreſſed occaſionally, it may always be carried into the houſe and eaten green.

After twice mowing, burnet, like other crops, requires dreſſing, which ſhould be powdered; as chalk, lime, aſhes, ſoot, &c. of courſe top dreſſing.

If cut for hay, it ſhould be done juſt before bloſſoming. When made into hay, it ſhould, if ſhowery, be treated as clover hay; when ricked, leave a tunnel in the rick, which, if the rick is ſmall, ſhould be covered when the hay has done ſweating.

The ſeed being apt to ſhed when mown for its ſeed, it ſhould be cut when the dew is on. Not only the haulm is good fodder; but the chaff mixed with other chaff is alſo good.

Six men and two boys threſhed and cleaned 7½ acres in ſeven days. This yielded 300 buſhels of clean ſeed, 200 ſacks of chaff, and 7 loads of hay or haulm. Ten days after the 7½ acres were cleared, it fed 7 cows, 2 calves, and 2 horſes, till Michaelmas; then being reſted till November 15, it produced a good crop again, and fed 6 head of cattle till Chriſtmas.

When other paſtures are burnt up, burnet will flouriſh green, and grow away as if ſhowered on weekly. After the firſt year the expences it merely the harveſting and occaſional dreſſing.

An Eſtimate of the 7½ Acres.

	£.	s.	d.
Rent, tithes, and taxes	7	5	0
Team	7	5	0
Mowing, 1*s.* 6*d.* per acre	0	11	1½
Getting in, additional labour, 2*s.* per acre	0	14	6
Six men and 2 boys	4	18	0
	20	13	7½

PRODUCE.

	£.	s.	d.
300 buſhels of ſeed, valued as oats only, but going farther, 37½ quarters, at 24*s.* per quarter	45	0	0
200 ſacks of chaff, at 1s.	10	0	0
7 loads of hay, fodder at 30s.	10	10	0
Carried over	65	10	0

	£.	s.	d.
Brought over	65	10	0
3 months feed to Michaelmas, for eleven head of cattle, at 8s. per month each	13	4	0
6 weeks for ſix head, to Chriſtmas, ditto	3	12	0
	82	6	0
Deduct expences as above	20	13	7½
Profit	61	12	4½

Here is a profit of 8l. 6s. 8d. per acre; and as 7l, 5s. is charged for the team, which was employed only for getting in and carting the dung, and which in fact was not worth 40s. the remaining 5l. if divided between the 7 acres, would make the profit 9l. an acre, twice as much as can be cleared from an acre of meadow. Could the feed have been ſold at 10s. a buſhel the produce of that alone would have been 150l. or more than 20l. an acre. But the convenience of ſuch feed is of more value than all the reſt.

CHAP. XVII.

OF PLOUGHING AND HARROWING.

IT is neceſſary to make ſome few obſervations on this head, both as to the nature of the ploughing, the time when, and the number of ploughings.

I would, in the firſt place, recommend it to every occupier of land, to employ a very good ploughman, one who knows how to plough and ſow well, and one who will not want watching. A team of two horſes in light, and four in ſtiff land, will plough an acre or more, in the courſe of a day; one acre is the cuſtomary allotment of a day's work, and is generally performed in eight hours. The team uſually leaves work at two o'clock; but it is better for the horſes, in ſummer time, to get to work at four or five, and quit before the heat of the day.

All that is neceſſary for a maſter to take care of, is, that his ploughman does not ride upon the handles of the plough, but plough the ground as deep as the plough will effect it, or as the upper ſtaple or layer of the land will admit.

Plants that have tap-roots, as beans, carrots, &c. thrive beſt in deep earth, which has induced many to trench-plough their land; but, for corn, the common depth of five inches is preferable to deeper ploughing. As I ſaid before, I am no advocate for turning up the clay or gravel, and mixing it with the mould: and for this reaſon; that it will require a long ſeries of tillage, to bring ſuch ſoil as is thus turned up into the ſame ſtate with the ſurface; and it is contrary to the general practice of huſbandry.

We are next to take care that the ridges lie handſome, round, and even. In dry ſoils, the ridges may be broad and flat; but in wet, moiſt ground, the higher and narrower the ridges are, the drier it will lie. In wet, clayey ſoils, I have ever found three or four-bout lands the beſt, as in harrowing, the horſes may walk in the furrows, and thus avoid poaching it. The furrows between the ridges ſhould, when the work is done, lie clean, ſo that the water can run freely off; and water-furrows ſhould be made in all depending places, to carry it clean away into the ditches. This cannot be well done, but by the ſpade, and men ſhould be employed for the purpoſe; for unleſs the crop lies dry, it will turn out a poor one. It is neceſſary, therefore, to drain all wet ſlanks; for where the water ſtands, the crop commonly fails. For the ſame reaſon, at the laſt ploughing, in moiſt riſing land, the furrows ſhould be up and down the hill; but in hungry, burning ſoils, it may be proper to leave the ridges acroſs the hill, in order to hold the water and the dreſſing, which otherwiſe might, in heavy rains, be waſhed away.

As to the time of ploughing, this muſt be, in ſome meaſure, regulated by the weather; for, in wet ſoils, there are times when the plough cannot go upon the land. In ſtiff clays, where a winter fallow is neceſſary to mellow and break the clods, the ſtubbles ſhould be always broken up in autumn; but, where winter fallows are not neceſſary, autumnal ploughings may, for want of time, be omitted; eſpecially when the ground is deſigned for beans or turneps the next year. Such a crop, receiving no very great advantage from ploughing in autumn, the ſtubbles may as well be left for the feed of ſheep; for autumnal ſtirrings are deſigned to deſtroy the roots of weeds by froſts, and to pulverize the land. This is more neceſſary for barley or oats, than for a crop that can be hoed, as hoeing the ground will effectually deſtroy the weeds. But, in wet ſoils, when ſuch autumnal ploughings are given, care ſhould be taken to ridge up the land, and water-furrow it, ſo as to lay it dry; otherwiſe, where we mean to do good, we ſhall chill the land, and do it a great deal of harm.

Farmers vary in their opinions reſpecting the number of ploughings on different ſoils. In ſtrong lands, ill adapted to certain crops that thrive beſt in light ones, as turneps, clover, barley, peas, &c. the more we pulverize the ſoil the better, which cannot be done, but by many ploughings, rollings, and harrowings; and where we wiſh to ſummer fallow, and clean the land from weeds, it is only to be done by frequent ſtirring it; but, when we mean to ſow it with ſuch grain as delights in ſtrong land, as wheat, beans, oats, &c. many ploughings are not only unneceſſary, but may be injurious. The ſame reaſoning will hold good in light land, provided it be clean: one ploughing is better for wheat, beans, or oats, than three; but, where it is neceſſary to clean the land, as in fallows, or turnep ſeaſons, if the farmer has time, and can do it with his own team, ſo as not to beſtow more expence upon the land than it will pay, he cannot well plough it too much.

All that is neceſſary to ſay, with reſpect to harrowing, is, that every farmer ſhould have three pair of harrows of different ſizes: a large heavy pair for three or four horſes, a ſmaller pair for two horſes, and a leſs pair for one. The great harrows follow the plough, the next ſize pulverize the land, and the ſmall harrows are chiefly uſed for harrowing in the ſeed. The land being ploughed in order to clean it, we cannot well make too much uſe of the harrows, for it is our buſineſs to bring it into fine tilth, and not ſuffer a weed to grow.

If the land be not a ſtrong clay, ſeven or eight acres, harrowed twice over in a place with the great harrows, is a good day's work. Smaller harrows ſhould go three or four times in a place.

CHAP. XVI.

OF WEEDING.

IT having been obſerved that, clean our land ever ſo well, time will naturally foul it, and that the carrying on of dung will contribute to ſuch foulneſs; wherever we find obnoxious weeds riſe with a crop that cannot be hoed, it ſhould be hand-weeded, by going up the furrows, reaching acroſs the ridges, and pulling up ſuch weeds by the roots; for, were they ſuffered to ſeed, inſtead of one weed, without a freſh fallow, we ſhould have the next year a thouſand. Catlock, poppy, docks, thiſtles, all ſhould be clean pulled out; and whenever we find the laſt, even in the hedge rows, they ſhould conſtantly be cut down before they ſeed; we never can have a clean farm without; for the ſeed of the thiſtle is winged, and will fly, with the leaſt breath of air, from field to field. Weeding the crop has ſaved the neceſſity of many a fallow, which is the loſs of a year's rent, and the annual expence of the team.

Thoſe who ſtudy the cleanneſs of their ground, will take care to weed their dung-hills from time to time, and ſow no grain but ſuch as is free from the ſeeds of weeds.

CHAP. XVII.

OF HEDGING AND DITCHING.

WHAT they call dead hedges, are the cuſtomary fences in my neighbourhood; and I apprehend this method of incloſing fields is very general throughout the kingdom, except in countries where they have plenty of ſtone, of which they make walls. Gentlemen and opulent farmers, who ſtudy more the neatneſs of their farms, than the article of profit, will plant their banks with quicks, or white thorn. Such a fence, no doubt, is beautiful, ſecure, when properly grown, and, if cut with ſheers once or twice in the ſummer, will laſt a great number of years; but it is certainly an expenſive one: for, beſides the annual labour of clipping, the farmer loſes the advantage he would otherwiſe receive in the ſpare wood, which will ſupply his copper and his oven; and let a quickſet hedge be ever ſo good, it is not impenetrable to hogs.

Dead hedges are fences made by cutting the ragged rambling hedge cloſe down to the bank, repairing the bank by caſting the contents of the ditch upon it, driving in ſtakes between two and three feet long, filling the lower part with buſhes, and weaving it to the top, between the ſtakes, with hazles, or any pliable ſticks of ſome length. A man will complete four or five rods, or perches, of ſuch a fence in the common way, in the courſe of ten or twelve hours; and the cuſtomary price with us, is from three-pence to four-pence a rod, and two ſhillings a hundred for the faggots he makes with the ſpare wood, with the liberty of taking home a faggot, worth two or three-pence more, each night, on his leaving work. Such a fence, with occaſional mending, will laſt five or ſix years, till the wood in the hedge is ſufficiently grown to remake it. Making this fence is, in fact, attended with no expence, as the faggots obtained at every ſuch making, are generally worth twice the value of the labour.

If the adjoining ditch be ſufficiently cleaned out to let the water paſs freely, the bank be ſmooth and tight, and the hedge even and ſtrong, which may be known, by putting our hand upon the top, and ſhaking it in different places, the fence is well made.

CHAP. XVIII.

OF THRESHING.

SOME farmers chooſe this buſineſs ſhould be done by the day, others by the quarter. Thoſe who are for the firſt mode, give this as their reaſon; that when men work by the day, they generally do their work better, being in no hurry to get it done: whereas, when they threſh by the quarter, they ſeldom beat the corn clean out. Thoſe who are for the other mode, argue thus: if men threſh by the day, unleſs the maſter's eye is conſtantly upon them, they will waſte their time; and of courſe, in the end, he will pay more for his threſhing, than if the work was done by the quarter; and as to not beating it out clean, that is the maſter's buſineſs; he muſt examine it, and ſee that the buſineſs be properly executed. In moſt countries, men wiſh to threſh by the quarter: as by working hard, and a greater number of hours than is the uſual complement of a day's work, they can earn more money in the courſe of the week. This principle has made it difficult to find men to threſh by the day; and, indeed, if honeſt men are employed, I think it moſt pleaſant both for maſter and man, that the work be done by the quarter.

Where a day's labour is rated at eighteen-pence, the following prices are generally paid for threſhing.

	s.	d.		s.	d.
Threſhing a quarter of Wheat from	2	6	to	4	0
Barley ——	2	0	——	3	6
Oats ——	1	2	——	1	8
Beans ——	1	2	——	1	8
Peas ——	1	2	——	1	8

according to what the crop yields.

After the corn is threſhed out, the cleaning, or winnowing, is paid for beſides. Two men and a boy will clean a load of oats or wheat in a day.

Clover ſeed is from five ſhillings to ſix ſhillings, threſhing and cleaning.

Drawing, weighing, and binding of wheat-ſtraw after threſhing, one ſhilling a load.

CHAP. XIX.

OF MANURING.

MANURING of land is of ſuch importance to the farmer, that he who omits it, muſt never expect a good crop; indeed, it is the very life of huſbandry, and the cultivation of land cannot go on without it. In the neighbourhood of great towns, plenty may be had, and at a very reaſonable price. But what are farmers to do, who live too remote to enjoy ſuch an advantage? Where manure is not to be met with on the farm itſelf, or in its vicinage, a method muſt be contrived to make it; and this can be done only by keeping as large a ſtock of cattle as the farm will admit of, and by other modes which I ſhall point out.

Stable dung is one of the beſt manures; and, if purchaſed (where it *can* be purchaſed), is worth upon the farm from five ſhillings to ten ſhillings a load; ten or twelve of ſuch loads is an ample dreſſing for an acre of land, and will keep it in good heart, if kept clean, for five or ſix years. To raiſe then the greateſt quantity upon a farm from a given number of horſes, is the matter in queſtion. This is to be done by keeping them all the year round in the ſtable, and littering them well; in which caſe, a horſe will, on an average, make twenty-ſeven or twenty-eight loads, which will manure three acres well; but to effect this, it will take four loads and a half of ſtraw to each horſe; which, if the farm will not ſupply, ſhould be purchaſed. Suppoſe theſe four loads and a half to coſt 3*l.* 7*s.* 6*d.* and to produce twenty-eight loads of dung; the price *per* load will then be under half a crown. Fern, where it can be got, is a tolerable ſubſtitute for ſtraw; but a farm generally yields ſufficient litter to make the purchaſe of it unneceſſary. The ſtubble of the fields might be mowed or harrowed up in froſty weather, and ſtacked for the purpoſe.

Farm-yard dung is the next in quality; and where cattle are foddered the winter through, and the yard well ſpread with litter, they will, upon an average, yield ſix or ſeven loads *per* head, ſo that two cows will manure an acre. Where cattle are ſtall-fed for fattening, two beaſts will, if well littered, yield about twenty-three loads of dung in the ſpace of fifteen weeks.

It ſhould be a farmer's ſtudy to make a compoſt dunghill at every field gate. For this purpoſe, he ſhould carry there all the manures he can pick up. Cleanings of ponds or ditches, chalk, earth, clay, aſhes, the dung of hogs, geeſe, pidgeons, poultry, brick-rubbiſh, or any thing he can get, ſuch as the liſt below points out; this, if well mixed together, with a little lime, and turned once or twice in the year, will turn out an excellent manure for graſs, clover, or any other purpoſe. But he ſhould take care to keep ſuch dunghills free from weeds.

When land is dreſſed at the rate of ten cart-loads *per* acre, each cart ſhould contain ſufficient to make ſixteen heaps, as parcelled out in the field; and one ſuch heap ſhould be allotted and ſufficient, to cover one ſquare rod of ground, there being one hundred and ſixty ſquare rods in each acre. But where the ſoil is in tolerable good condition, eight loads *per* acre will be ſufficient for wheat, as ten loads of good dung may make the crop too luxuriant, and occaſion it to fall before harveſt. With eight loads, one ſuch heap ſhould be appropriated to rather more than a ſquare rod of land.

As the hedges ſhelter birds, which often conſume the crop; and the corn under them, from its warm ſituation, is naturally drawn up weaker and taller than in more open parts of the field, and of courſe more apt to be lodged; farmers ſeldom dreſs the head-lands of a field when they crop it with wheat.

The following is a liſt of manures; with the uſes they are fit for, moſt of which are eaſily procured in different places.

Horſe-Dung. When freſh, for cold ſtiff clays; when rotten, for all ſorts of land.

Cow-Dung. Rich and cooling; fit for dry ſandy ground.

Hog-Dung. Ditto. This is rather too ſtrong of itſelf, but is an excellent mixture for the compoſt dunghill. See Chap. II. on Clover.

Dung of Sheep, Rabbits, Goats, Deers, &c. Very warm good top-dreſſing. Folding a flock of ſheep every night upon fallow ground, is a good practice. Sixty ſheep will fold an acre in ſix weeks, equal to ten loads of dung. If this dung is collected, it ſhould be covered from the ſun, that its ſalts may not be exhaled.

Sheep-Dung is hotter than *Cow Dung*, and *Cow-Dung* hotter than *Horſe-Dung*.

Littered ſheep-folds is a Flemiſh cuſtom. They ſpread the ground with turf, cut from commons or any weeds they can get them, in order to increaſe the manure.

Pidgeons-Dung. The hotteſt of moſt dungs, fit for the compoſt dunghill, or top-dreſſing; 8 buſhels per acre.

The pidgeon-houſe ſhould be ſtrewed with litter to increaſe the manure, and when thrown out, laid on the ſhady ſide of the dove-houſe.

Chicken-Dung. For top dreſſing.

Gooſe and Ducks Dung. Ditto. Some think it ſpoils the graſs, becauſe horſes do not like to eat where geeſe have fed; but this is owing to the ſtrong ſalts in it. Where geeſe take to ſitting at night in a farm-yard, if the place be daily littered and kept clean, they will in the courſe of the ſummer make a great deal of dung.

Human-Dung is of ſo hot a nature, that it is fit only for the compoſt dunghill. If rock-lime be thrown into the neceſſary in January, it will remove the offenſive ſmell, and dry it ſo as to make it ſpread.

Human Urine, and *Urine of Cattle, Dogs, &c.* The ſame quality as their reſpective dungs; and have this advantage, the that they do not produce weeds; if mixed with as much, or two thirds water, it is a good top dreſſing, to be ſprinkled over land with water carts. Human urine ſhould be daily thrown upon the dunghill, and the draining of ſuch dunghills, with the urine of cattle, ſhould never be ſuffered to run off from farm-yards, but, if poſſible, collected in reſervoirs.

Dead Animals ſhould be buried in compoſt dunghills.

Blood from the butchers. A very ſtrong manure; it ſhould be mixed with earth, ſand, or ſaw-duſt, for the convenience of carriage, and then uſed as a top dreſſing for any land.

Horn ſhavings, bones, hoofs of cattle, bits of leather, hair of animals, feathers, and *woollen rags.* Good top dreſſings for any land.

Salt. Excellent top dreſſing for moſt lands. Refuſe ſalt is ſold, duty free, for this purpoſe. It ſhould be ſown upon the land.

Lime. A general manure for all lands, ſtiff or light; excellent to mix in a compoſt dunghill, as it makes the maſs ferment and rot.

Chalk. Good for all ſoils, but beſt for clay or moiſt ground; eight or ten loads an acre. Put ſome, if poſſible, in all compoſt dunghills.

Marle. A general manure, but excellent for dry, ſandy, gravelly, or light lands; good even for moſſy ground and clay, if well diſſolved. Will make white clover come naturally. Happy is the farmer who has a marle-pit in his grounds!

Sea Sand. For cold ſtrong clays. It is full of ſalt.

Saltpetre. Is a good manure, and the earth will naturally breed it, by planking it over, keeping it from the ſun, and from its growing any vegetable.

Oyſter Shells and *Sea Shells*, ſmall or ground fine. For ditto. 80 barrels per acre holds for ſome years.

Sand. For ſtiff clays.

Clay. For ſandy land, or when mixed with lime or aſhes, for moſt ſoils.

Gravel. For ſtiff clays and boggy ground. If full of large ſtones, ſcreen it.

Road Sand, or the *Sluſh of Turnpike Roads,* when dry, this is generally thrown up in ſmall heaps to dry on the road-ſide. Any one may cart it away. It is the ſtones, with which the road is mended, ground to powder. Found good manure for meadow land, brings good crops of graſs. This is laid on near an inch thick. It makes good garden walks, binds firm, can be readily cleaned, and dries to a good colour.

Lime rubbiſh and *Brick rubbiſh.* For ſtiff clays and boggy ground.

Rotten wood, and *Saw duſt, Tanners bark* and *Willow-tree earth.* For ſtiff clays.

Leaves of trees. When rotten, put them in heaps for this purpoſe. We ſee that graſs, where leaves fall, ſeldom requires dreſſing, Theſe would be better, if mixed with rotten chaff.

Wood ſoot, Coal ſoot, and *Malt-kiln duſt.* For cold ſtiff clays, to kill ruſhes in meadows, and for top dreſſing to corn in ſpring. Soot and malt duſt may be bought for ſix pence or ſeven pence *per* buſhel; and twenty or thirty buſhels will dreſs an acre well. (Soot is now eight pence *per* buſhel, 1798.)

Wood aſhes, Aſhes from green vegetables, Potaſh aſhes, Peat aſhes, Charcoal duſt, Turf aſhes, and *Soap lees,* are good top dreſſings, being full of ſalts. They ſhould, if poſſible, be kept dry till uſed. Soap lees ſprinkled on fern will deſtroy it.

Soap boilers aſhes, Which may be purchaſed for about three ſhillings *per* cwt. will effectually deſtroy thiſtles in graſs lands, by mowing the thiſtles, and ſprinkling the aſhes lightly over them.

Coal aſhes. For cold ſtiff clays, either meadow or arable land, and will produce red clover naturally. If not very fine, put a little unſlacked lime among them, and it will reduce them to very fine powder.

Chippings of Stone and *Marble.* For clay land.

Sea-weeds. Very full of ſalts, and ſhould be ploughed in directly, or made into a dunghill mixed with earth, lime, &c.

Weeds of all ſorts ſhould be burnt for aſhes, if their ſeeds are ripe; otherwiſe, for the compoſt dunghill.

Fern carried into a farm yard to rot, or laid on ground on which ſheep are folded, is a good manure, carted off in September or October. Fern dung naturally breeds muſhrooms.

Offals of a Kitchen Garden and ſweepings of ſhort graſs. For the compoſt dunghill.

Sweepings of Streets. For meadow-land.

Sweepings of Herb-markets. For the compoſt dunghill.

Offals of Fiſh. For ditto.

The *Roots of Couch, or Scutch-graſs* harrowed from lands. For the compoſt dunghill, laid to rot, or burnt upon the land.

Mud of Rivers, Fiſh-ponds, and *Ditches.* For dry ſandy ground.

Ant-hills. For the compoſt dunghill.

Oil-cakes. A good top-dreſſing; are frequently imported from Holland; fifteen ſhillings worth ſpread on an acre will dreſs it well.

Hops from brewers. For clays.

Grains from ditto. Good top-dreſſing.

Burnt Clay. A very convenient manure, after making new ditches on clay lands; a little bruſh-wood will burn a great quantity. See the method of burning it in this work.

Sweepings of a dog-kennel. For the compoſt dunghill.

Buck-wheat, *Tares*, *Rye*, *Clover*, and *Everlaſting Pea.* To be ploughed in when going to bloſſom.

Turneps, ploughed in at Michaelmas.

Urine of all ſorts, *brine* of ſalted meat, and pickled fiſh, *ſoap ſuds*, *liquors from dye-houſes*, *ſalt and water*, *blood and water*, or the *waſhings of a ſlaughter-houſe*; for top dreſſings, but, when too ſtrong, ſhould be diluted with water.

Flower of Brimſtone and Water. Good to ſprinkle over turneps, or ſoak the ſeed in before ſown, to prevent the fly.

Heat and warmth is a great help to ground. The ancients uſed to burn heath, ſedge, and ling, upon it. Hence Denſhiring of land, that is, paring and burning it.

Note. The compoſt dunghill may be a mixture of any ſort of manure; but if lime be mixed with every layer, it will make it ferment and rot the ſooner. It ſhould be made in a ſhady corner, if poſſible, or covered over to prevent the ſun's exhaling the virtue of the dung; it ſhould, as I ſaid before, be frequently turned, and no weeds be ſuffered to grow on it.

Twigs, boughs, and ſtraw, laid upon dunghills, will preſerve them from the action of the ſun.

CHAP. XX.

MISCELLANEOUS OBSERVATIONS AND EXPERIMENTS.

Part of the following obſervations have appeared in the country almanacks I have publiſhed, ſince 1787. Some are experiments and remarks of mine, and ſome of other people; but they will tend to amuſe thoſe gentlemen who are diſpoſed to try experiments.

ON MEADOWS.

TO make meadows, or paſtures, flouriſh, they ſhould be cut for hay only once in two years: the ſecond year they ſhould be fed, unleſs they are dreſſed.

The beſt mode for laying down paſtures is to ſow Dutch clover, the meadow feſcue-graſs, the meadow foxtail, and a little rib-graſs. It ſhould be ſowed in Auguſt without hay-ſeed or any other thing, except a little trefoil. Hay-ſeed is generally full of weeds. The next year, if the land was clean before, the crop will be a very good one, and the land worth 40s. an acre.

ON COWS AND OXEN.

A milch cow will require an acre and three quarters of good meadow, or two acres of indifferent paſture, to keep her well from May 1, to October 31; or one acre and a half of clover green, will keep her twenty-three weeks, and enough will be left to keep two ſheep ſix weeks. She will eat, when fed on hay, forty pounds weight a day upon an average; which for the winter ſix months, is four loads and a half. Straw, and fifty pounds of turneps per day, will keep her well before calving.

A milch cow will eat, from the end of October to the middle of March, that is 4½ months, 2750 large drum head cabbages, that is about 16 a day, and theſe may be grown on a quarter of an acre of good ground.

Cows may be fed with advantage, if they are kept in ſummer time in the houſe, and fed with green clover, and turned out at night. Much leſs graſs will ſuffice, more manure is obtained; and cattle is in better condition than when at paſture day and night. In winter they may be fed with turneps, ſtraw, and boiled chaff. Boiled linſeed is a cheap food, and has a capital effect. It is the practice of Mr. Johnſon of Hill-Houſe, near Kirk Newton in Mid Lothian, Scotland. A Scotch peck of linſeed may be bought for 20d. this is ſufficient to make 45 Scotch pints of water almoſt a jelly, by boiling it down to 40. It is ſtrong and nouriſhing, and cows will eat it with much avidity.

Half an acre of turneps, drawn, will keep a cow well, from Nov. 1, to March 31, five months.

To make Cows dry.

Put ſix ounces of white roſin, well powdered, into a quart of water over night; bleed the cow and milk her in the morning, and give her the above roſin water; turn her out to graſs, and milk her no more, and ſhe will become dry. Mr. T. Davis of Goſs, has tried it often, when he wanted to fatten them for the butcher, and he ſays it never fails.

Oxen may be fatted with linſeed oil and bran. An ox of 100 ſtone will eat a pint and a quarter of oil mixed with two pecks and a quarter of bran daily, at three feeds; the oil at three ſhillings a gallon, the bran at eight pence a buſhel, that is about thirteen pence a day, beſides half a truſs of hay; ſo that it will nearly coſt 4l. 4s. to fat ſuch an ox, in the courſe of twelve weeks. This is rather cheaper than giving them oil cakes, and the meat is equally good, and it fills them as well.

Bullocks, brought up near home are better than ſtrangers, becauſe they are neither troubled with change of air, water, nor paſture. A juſt obſervation, though little attended to.

In many places they feed their oxen with the branches and leaves of trees, viz. the green branches of elm, oak, poplar, and holme in winter; when other green boughs fail, the fir-tree will ſerve, or the bronſing of oaks or holly.

The greater extent of ground cattle have to range the better. One field of ten acres will fatten or keep more cattle than two fields of five acres each.

Mr. Burgoyne, near Harlow, Eſſex, fats his oxen with potatoes boiled in ſteam; his apparatus conſiſts of a ſmall copper, covered, with a pipe that conducts the ſteam ſome feet into two tin boilers full of potatoes. With him three pecks of coals will boil eighteen buſhels of potatoes in twelve hours; one perſon attends the boiling, but two are neceſſary to take off the kettle full of potatoes. One buſhel of coals has with great attention boiled 60 buſhels. Steam, however, is ſo extenſive that a ſmall copper of water might be contrived to boil 20 buſhels at a time, with as much eaſe and expedition as five.

He fattens ſome with raw potatoes; and the following is one of his eſtimates. A large Suſſex ox weighed 160 ſtone on turning out in May, and when taken in, November 3, weighed only 154 ſtone 5 lb. a proof that graſs did not bring him forward. He was too large for graſs. November 3 he was put up and ſtall-fed, with raw potatoes. He ate two buſhels a day, and 16lb. of hay, in the firſt month after ſtabling; he gained in weight 10ſt. 3lb. which at 3s. a ſtone, is 1l. 10s. or 15s. weekly.

N. B. It will require the cream of between ſixty and ſeventy quarts of good milk (ſay ſixty-five) to make five pounds and a quarter of good butter; which, at nine-pence per pound, is worth three ſhillings and eleven pence farthing; whereas, the ſame quantity of milk ſold at one penny half-penny per quart, would yield eight ſhillings and three half-pence; but, in the firſt caſe, the ſkimmed milk is left for hogs, which may be fattened, if they have plenty, on that alone: and in feeding of hogs, ſkimmed milk will pay about one halfpenny a quart.

In dairies where cheeſe is made, butter is generally made of the whey-cream; and in dairies where butter is made, a blue milk cheeſe is uſually made of the whey-curd.

In buying ſtore-heifers, take care they are not bulled before you buy them. A ſure token to know they are bulled, is from their having wax in their teats, which may be brought out by drawing them between their fingers. Obſerve alſo the barren under the tail, if there is a drop hanging at it, which generally gathers dirt, depend upon it ſhe is bulled.

A Comparative Eſtimate of the Profits of a Cow between ſelling the Milk, converting it into Butter, or ſuckling the Calves.

Two acres and a half of good meadow graſs is ſufficient to keep one cow the year round, one acre of this is alternately to be laid up for hay, the other acre divided into three parts and fed. I mention this not ſo much to adviſe it to be done with a ſingle cow, as with many. The profits of any number of cows may be gathered from this eſtimate. I will ſuppoſe her to calve at the end of April, and go to the bull at the end of July.

A middling cow, four years old, ſuch as is bought now (1798), with a calf by her ſide, for £.16 16*s.* will, in good keeping after calving, yield ten quarts of milk in the morning, and ſeven in the evening, and this for three months, that is better than four gallons a day, and in the 7th, 8th, and 9th month after calving, will give five quarts in the morning, and three in the afternoon, that is two gallons a day. Let us take the average for nine months, and this will be three gallons a day, for 39 weeks, the other three months we will ſuppoſe her dry.

Produce on milk where it can be ſold for 2d. per quart.

	£.	s.	d.
Three gallons of milk daily for 39 weeks, at 8d. per gallon	27	6	0
The calf ſold at three or four days old	0	18	0
	£. 28	4	0

EXPENCES

	£.	s.	d.			
2½ acres of graſs at 40s.	5	0	0			
Taxes	0	12	6			
Tithe	0	7	0			
Bulling	0	1	0			
Making an acre of hay	0	7	6			
Stacking, &c.	0	3	0			
Year's loſs on the value of the cow, 7½ per cent	1	5	6			
One man ſervant will attend 16 cows at 10s. a week.	1	12	6	9	9	0
			Profit	£. 18	15	0

Note. The acre of graſs ſhould produce one load and a half of hay, which it will do with the dreſſing of the cow, if houſed for three months; this is three truſſes a week for four and a half months; but half an acre of turneps will keep her longer than this, and theſe may be bought and brought to the ſtall for £.3 or leſs, in which caſe there will be a ſaving of 30s.

PRODUCE IN BUTTER.

	£.	s.	d.
Such a cow as above will yield			
For 13 weeks 9lb. at 1s. the price 1798	6	17	0
— Ditto 7lb. Ditto —	4	11	0
— Ditto 5lb. Ditto —	3	5	0
— Ditto dry the calf —	0	18	0
52 weeks.	£.15	11	0
Skimmed milk and butter milk, at 2d. per gallon to feed pigs, 2½ gallons per day, 39 weeks 2s. 11d. per week, ſay 3s.—5l. 17s. from this deduct 5s. 6d. for ſalt in the butter.	5	11	6
Profit.	£.21	2	6
Expences as before - - £9 9			
Add maid ſervant's wages and board 24s. to 16 cows - 1 10	10	19	0
Profit.	£.10	3	6

But that pigs fattened on milk will pay two pence a gallon, the ſkimmed milk, will appear as under.

The average quantity of milk three gallons a day. A pig of five ſtone weight bought in at 3s. 8d. per ſtone and ſold at twelve ſtone at the ſame price, will, on an average, ſwill ſix quarts a day, that is three gallons for two pigs; of courſe, one cow in nine months will fatten ſix pigs.

	£.	s.	d.
Value in pork for fattening 6 pigs, at 7 ſtone each, at 3s. 8d. per ſtone —	7	14	0
2 gallons of milk per day, at 4d. per gallon	6	12	0
	£.1	2	0

leaves an overplus of 1l. 2s. for barley meal or ſig-duſt, to help out, though milk alone will fatten a pig ſufficiently for pork.

Profit

Profit on Suckling Calves.

A calf, to be made fit for the butcher, will ſuck the milk of one cow for nine weeks, and half the milk of a ſecond cow for ſix weeks, which ſay is equal to the milk of one cow for 13 weeks; of courſe ſuch a cow as above will only fatten three calves.

	£.	s.	d.
Suppoſe then a calf of 13 weeks old, ſhall weigh 17 ſtone, at 4s. a ſtone, i. e. 3l. 8s. each, or for the three	10	4	0
Three calves at a week old, including her own, at 18s.	2	14	0
	7	10	0
Expences as before	9	9	0
Here is a loſs of	£.1	19	0

How is this? Farmers generally reckon the profit of a cow for ſuckling, to be about 6l. a year; but they muſt deceive themſelves in this, or they do not rate the expences ſo much as they are at. Sometimes a cow will fatten her own calf, and probably a ſecond, or nearly ſo, and it will not require the whole attendance of a man to attend 16 cows: the three months they are dry, his time is ſaved. Perhaps they do not eſtimate their graſs land at a higher price than their arable; perhaps 20s. an acre or leſs; perhaps they do not allot 2½ acres to a cow, but turn them out half their time upon a common; nor do they perhaps reckon any thing for a ſervant's time to attend; and inſtead of giving them hay when dry, they may turn them into a ſtraw yard. All I can ſay is, that this is a fair eſtimate, and if a ſaving of expence can be made in one caſe it may in another; and it ſerves to ſhew, that the 6l. they ſay they gain yearly by the above means, if added to the produce by milk, will make it 24l. 15s. inſtead of 18l. 15s. and if added to the butter 15l. 3s. 6d. inſtead of 9l. 3s. 6d. In this way, according to their own reckoning, the comparative profits will be as follow:

	£.	s.	d.
By ſuckling — — —	6	0	0
Butter — — — —	15	3	6
Milk — — —	24	15	0

Hence it appears, that in dairy farms where butter is made, 125 acres of rich graſs land, keeping 50 cows, will give a profit of 537l. 10s. per annum; and there are butter factors that will engage for the whole. In countries far diſtant from London, from whence, particularly in ſummer time, it cannot be ſent up freſh and in proper ſtile; farmers tub it, which conſiderably leſſens their profit; for independent of ſalt and tubs, it will ſell for 2d. or 3d. a lb. leſs than freſh butter; but in ſuch places, graſs land is cheaper, and alſo other articles of living; or they make it into cheeſes. Indeed, except in the vicinage of great towns, it is difficult to ſell milk; but milk ſold at 1½d per quart, will conſiderably more than double the profits of making butter, and at far leſs trouble.

J. T.

The Advantages of Feeding Milch Cows in the Houſe.

A paper ſent to the Board of Agriculture by Baron Alven, a Hanoverian nobleman.

In order to this, the cows ſhould be early trained to it, otherwiſe they do not thrive. A large cow, ſuch as we ſee about London, requires near four acres of good land to feed it entirely abroad, ſummer and winter; and in this caſe the ground will be poached in wet weather, the graſs hurt by being bruiſed inſtead of being cut, and the manure will not be half ſo much or ſo uſeful.

But ſtall-fed with clover, green or dry, two acres of cut land is ſufficient to maintain it. An Engliſh acre each ſhould produce ten ton weight of green clover, or 2½ ton of clover hay. Now ſuch a cow will eat 110lb. daily of green meat, or half a truſs of hay, which two acres in good heart will produce. But they may be fed with lucerne, burnet, potatoes, turneps, carrots, cabbages, peas, or beans.

Currying them as we do horſes when ſtall-fed, and keeping as clean as horſes in a ſtable, is attended with the firſt conſequences, both in regard to the milk they yield, and the rapid improvement of their carcaſe.

Large cows, ſuch as have been mentioned, kept in the houſe and properly fed, ought to yield nine gallons Engliſh, per day, for the firſt four months after calving. After this time the milk will gradually grow leſs and leſs.

But ſuppoſe ſuch cows yield on an average only 6 gallons a day for 9 months, or 252 days, which, at 8d. a gallon, produces 4s. a day, or in 9 months, is 50l. 8s.

If milk cannot be ſold, the profit will be rather leſs, but ſtill very conſiderable: 5 gallons Engliſh ſhould produce 2 lb. of butter. Hence in all 604 lb. at 1s. a lb. worth 30l. 4s. The butter milk and ſkimmed milk will be worth 2d. a gallon for fattening pigs, that is, 1s. a day for 252 days, is 12l. 12s. total, 42l. 16s. per cow. Fed on 2 acres, yields 21l. 8s. per acre.

Milch cows, if fed with ſtraw, and one peck of potatoes a day, in the winter, will give more milk, and the butter made from ſuch milk, will have the yellow colour, and will be ſweeter than when fed on hay.

ON OXEN AND COWS.

Oxen for draft require cleanneſs of limb, thin neck, light ſhoulders, depth of carcaſe and cheſt, light or no horns, wide noſtrils, and thriving conſtitution.

The beſt heads are the Herefordſhire, Glouceſterſhire, Yorkſhire, Suſſex, Devon, and Somerſetſhire, all the middle horned.

Cows to be good require ſmall horns, long, fine, green and ſpreading; clear of leather under the chops; good ſhoulders; long quarters; wide back; deep cheſted; ſpine ſtreight from wither to tail; thighs thin and ſtanding narrow at the round bone, that they may calve eaſily, and produce fine calves; broad ribbed; thick ſkin; udders large when full, looſe and thin when empty, with large milk vanes to fill them, and long elaſtic teats for eaſy milking; legs below the knee ſtreight, and not too long, their bone light, and not fleſhy, but ſtrong in joint and ſinewy.

A cow or ox throws off the tip of its horns at three years of age, at four years a ring or wrinkle is ſeen round each horn, near the baſe; and every future year adds a freſh ring; thus, two rings denote five years old, three rings ſix years, and ſo on.

ON CALVES.

A yearling calf will eat about five pounds or ſix pounds of hay in the courſe of the night, by way of fodder in winter, i. e. half a load in ſix months. To make them grow, they ought to have the beſt hay. Give calves plenty of ſkimmed milk, and they will grow away apace.

Calves may be weaned with very little milk, by the following method.

The firſt eight days after they are calved, they ſhould ſuck the cow. They ſhould then be taken from the cow, and the next eight days fed with new milk. The next eight, you may give them three parts new milk, and one part hay-tea mixed, made by ſteeping the beſt hay in hot water, and letting it ſtand till it is cold: the eight following days give them half new milk and half hay-tea; the next eight, three fourths hay-tea, and one fourth milk; and after this, nothing but hay-tea till they will drink water. During this time, they ſhould have a little freſh hay put daily before them, to tempt them to eat; and, in the laſt three weeks, they ſhould be turned out into graſs, that they may learn to feed. One cow will thus wean ſeveral calves. Calves ſo weaned will thrive well, and grow, but not equal in ſize to thoſe that run with the cows all the ſummer, or fed with ſkimmed milk.

But they may be weaned without milk, thus, boil one quart of linſeed, 10 minutes, in ſix quarts of water, it will make a good jelly; and mix this jelly with a ſmall quantity of the beſt hay tea. Linſeed is 4s. 6d. a buſhel, and 10 buſhels will ſerve 55 calves, which is about 10d. a calf. It rears them better than milk, and they do not fall off when turned to graſs.

If calves ſcour, give them powdered chalk and wheat meal, worked into a ball, with gin.

ON SHEEP.

To ſuch as wiſh to keep ſheep, the following eſtimate will be acceptable.

	£.	*s.*	*d.*
Fine large ewes with lamb, may be bought in at Michaelmas, at about twenty-two ſhillings each, which, in July following, will ſell again for - - - - -	1	1	0
The lamb will then ſell for - - -	1	7	0
The wool of the two, ſhorn before ſold, will ſell for about - - - - -	0	3	0
	2	11	0
Deduct the firſt coſt - - - -	1	2	0
Leaves profit - - - -	1	9	0

Sheep may be fed on ſtubble till Chriſtmas, where graſs is not plentiful, and then on turneps till May-day; next on rye, and then on clover, till they are fold. No meadow will do for ſheep in the winter, that is wet enough to let them ſink up to the firſt joint of their legs; it will rot them.

An acre of turneps will feed one hundred ſheep for ten days; or about eight ſheep from Chriſtmas day to May-day. But one hundred ſheep for a year, it will require five acres of turneps and fifteen of clover; that is five to an acre. Incloſed paſture will carry ſix to an acre. A folding ſtock of 500 without the run of common land will require fifty acres of turneps, good dry land, 130 acres of clover, and five loads of hay. One acre of good turneps will fatten ten wethers, or keep ten ewes with their lambs.

A good acre of graſs, when ſheep fatten kindly, will fatten fifteen wethers, which for home conſumption is valued at ſeven or eight pounds.

Sheep require a large range of paſture: two acres and a half of graſs, and two and a half of ſtubble, be they ever ſo bare, will keep a ſheep all the winter till March.

Twelve pounds weight of hay will keep twenty ſheep and their lambs a week.

An acre of turneps will keep forty ſheep three weeks: as much as they will eat to fatten them, if in good condition before.

Dung of Sheep, when folded upon land, for the richneſs of the manure, is equal in value often to the profits ariſing from the ſale of them. Threeſcore ſheep folded every night, will manure an acre of ground well in the ſpace of ſix weeks.

Further Remarks on Sheep.

There are ſeven ſorts of ſheep; 1. Dorſet; 2, Wiltſhire*; 3. Lincoln, Leiceſter, and Northampton; 4, Teeſwater; 5. South Down*; 6. Norfolk; 7. Hants*; and 8. Mountain.—Thoſe marked *, are generally uſed for folding-land, the others not.

1. The Dorſet are very woolly, ſhort legged, rough head, round horns ſticking out from their heads, and are bred in fine hilly downs. They require a ſhort bite, and are the tendereſt of all ſheep. They produce good houſe and graſs lamb, and about 4 lb. of good wool.

2. The Wiltſhire have high long legs, ſhort wool, bare bellies, bare white faces, horns falling backwards behind their ears, cloſe to the head. Theſe are hardy, but require a ſhort bite. They are chiefly bred for ſtock, and yield about 4lb. of wool.

3. The Lincolnſhire, Leiceſterſhire, and Northamptonſhire, have the ſhorteſt legs of all, white faces, and great carcaſes, and are chiefly kept for ſtock. They require ſtrong rich paſtures that yield a good mouthful, do well in marſhes. They have no horns, but a great deal of long wool from eight to twelve pounds.

4. The Teeſwater are much the ſame as the laſt, and require the ſame food, but are longer in the leg.

5. South-downers are ſmall, with black faces and legs, and no horns. They are bought for ſtock, are very hardy and fit for hills; their wool is very ſhort and very fine, yields from two pounds to three pounds, and is worth one penny a pound more than other wool.

6. The Norfolk are middle ſized ſheep, with horns, long legs, black faces and legs, are bought for ſtock, and yield from three pound to four pound of wool.

7. The Hampſhire ſheep are alſo middle ſized, have horns, but longer legs, and not ſo clear in the bellies; fed like the South-downers.

8. The Welch and North Mountain ſheep are very ſmall,

have long legs and horns, and yet yield from half a pound to one pound of indifferent wool.

The price of ſtock-ewes is from eight ſhillings to twenty-eight ſhillings each; ſtock-wethers from 16s. to 30s. each.

There are three ends in rearing lambs: 1. Houſe lamb. 2. Graſs lamb. 3. Lambs for ſtock.

1. Houſe lambs are had all the year round. Lambs kept always in houſes and ſold at eight or ten weeks old, will fetch from twenty-five to forty ſhillings, according to the time of year. Fine lambs in winter have ſold for near three pound a lamb. The Dorſet breed is beſt for theſe, and is as fat.

2. Graſs lamb. Theſe lambs in November, December, and January, run out with the ewes, and are ſold at four or five months old, from fifteen to twenty-five ſhillings. Though the Dorſet is the beſt breed for this, all the breeds in England will lamb time enough for killing the better part of the ſummer.

3. For ſtock, all breeds will do. They lamb in March and April, and are ſold for ſtock at fairs in autumn, from ſeven to twenty ſhillings each.

The feed of ſheep in ſummer is common graſs and clover; in winter, turneps; and from turneps in the ſpring, turn them into tares. This is the univerſal practice. As ſheep have falſe ſtomachs like cows and oxen, it is neceſſary to take care they are not hoved with clover, that is, blown up, as they will be, if turned out too early in the morning, before the dew is off, and where the clover is too long; nor ſhould they be turned out with quite empty ſtomachs.

Sheep are liable to ſeven diſorders: 1. The rot. 2. The ſtaggers. 3. The red water. 4. The white water. 5. The ſcab. 6. The foot rot; and 7. The maggot or fly ſtruck.

1. The rot proceeds from ſpringy ground, the black gravelly land where penny-royal grows, and the ſides of ponds and gravel pits. Its ſymptoms are as follow: the red mem-

brane of the eye-lid looks white inſtead of red, the gums look the ſame, and the part on each ſide the udder or ſcrotum loſes the waxy quality which always adheres to that part when in health, and the wool peels off in the extreme of the diſorder. When ſheep have it, if turned into feed on turneps, they will die inſtantly. This diſeaſe reſembles the jaundice in the human ſpecies, the liver being found full of inſects, like flounders. To cure it, they ſhould be put as ſoon as ſuſpected, to dry food. They ſhould not be put on land, where water riſes above the fet lock joints.

2. Sheep with the ſtaggers, are ſeized with a vertigo or ſwimming in the head, keep turning round, and die in a few days. Lambs ſo afflicted, are called poddery. There is no cure for this. The poddery affects only the lambs or two tooths. Theſe turn round, but may not perhaps die for two months; whereas, in older ones, it kills at once. This is owing to a grub like a maggot between the horn and the ſkull.

3. The red water ſeizes ſheep ſuddenly, and carries them off immediately. This is bloody urine, ſuppoſed to ariſe from eating noxious herbs; ſometimes it is owing to white froſty mornings in autumn, or to dew damps. To cure it, take ſalt petre, allum, or ſulphur, of each an equal quantity, one half the quantity of bole armoniac, finely powdered, and give two ounces every ſix hours in a pint of forge water. Keep them in a houſe littered.

4. The white water is the ſame as the red, except in colour, but not ſo bad. Thoſe that die of the red, ſtink immediately; not ſo the white.

5. The ſcab is a ſort of ſurfeit, reſembling the itch inſect, and proceeds from poverty, over-driving, thick folding, heat or inſects. Young ſheep are more apt to pull their wool out than old ones, and then the inſects ſeize them. The cure is

to rub them with tobacco water; if this is not done, all the wool will peel off. *Note.* The tobacco water muſt be rubbed in when the ſkin is dry.

6. The foot rot ariſes from wet paſtures, and is a ſoreneſs between the claws. This diſorder is catching, owing to heat, ſuckling houſes, hot dung, on wet ground not more than dry. When very bad they will crawl upon their knees.

Waſh their feet well with water ſtrongly impregnated with oil or ſpirit of vitriol; if too much vitriol is accidentally applied when at paſture, the dew will prevent any bad conſequence. Once waſhing is ſufficient.

7. The maggot or fly-ſtruck, proceeds from being fly blown, and if not cured immediately will eat into the entrails in 24 hours. The cure is common ſublimate and turpentine, dropped in between the wool and rubbed in. The fatter the ſheep are the ſooner it deſtroys them, owing to their ſweating more than the leaner ſheep.

GENERAL REMARKS.

In rainy weather ſheep ſhould not be folded, but ſuffered to ſhift for themſelves under hedges. In Wiltſhire, in lambing time, they bring them into yards, part of which are covered.

Shepherds are generally allowed to keep a ſmall number of ſheep in proportion to the flocks, and have the fleeces of thoſe who die accidentally.

Stubbles. To make the moſt of ſtubbles; turn geeſe into thoſe of oats, and pigs into thoſe of beans: each muſt have water to have recourſe to, or they will not thrive. Where there is no pond, place a trough or two. One month in an oat ſtubble will fatten geeſe well.

Weight of wheat, &c. A buſhel of wheat, weight ſixty pounds ſtandard (eight gallon meaſure) when ground into meal, and dreſſed into fine flour, gives forty-five pounds, (and twelve pounds of bran,) which, when baked, will yield fifty-eight pounds and a half of bread.

Three pounds and a half of flour makes a quartern loaf, weight 4 lb. 5 oz.

Note. Twelve ounces of yeaſt, and four ounces of ſalt, to half a buſhel of flour.

A buſhel of good wheat, eight gallon meaſure, will weigh ſixty pounds and better.

ON THE PRICE OF LABOUR.

THOUGH the price of labour differs a little in moſt counties, the following prices in the county of Surry, may lead gentlemen to judge of its value in other places, eſpecially if they take into the conſideration the price of day-labour, which is there, in the winter, one ſhilling and four-pence; in the ſummer, eighteen pence. I am ſpeaking of the year 1790. The prices are now proportionably raiſed, near 25 per cent.

	s. d.		s. d.
Threſhing a quarter of wheat (nine gallon meaſure) from	2 6	to	5 0
Barley, ditto	2 0	to	2 6
Oats, ditto	1 2	to	1 6
Horſe or tick beans ditto, from according to the goodneſs of the crop.	1 0	to	1 6

Note. Cleaning the above, is always paid for apart.

Threſhing and cleaning clover ſeed, fit for ſale, from five ſhillings a buſhel to ſix ſhillings.

Setting tick-beans by women, ſix-pence per peck; horſe-beans, eight-pence. An additional penny a peck, if the ſetters cover them in.

Reaping wheat, from ſeven ſhillings to twelve ſhillings an acre, according to the crop, and whether it be lodged or not.

Mowing barley with clover mixed, about two ſhillings and ſix-pence an acre.

Mowing oats, one ſhilling and ſix-pence, or two ſhillings an acre, according to the crop. Two ſhillings and ſix-pence if they are much lodged.

Mowing graſs, two ſhillings and ſix-pence an acre; three ſhillings if flooded or lodged.

Cutting beans five ſhillings or ſix ſhillings an acre, according to the crop.

Hoeing turneps, ſix ſhillings an acre the firſt time; four ſhillings the ſecond. An active man can earn at it three ſhillings and ſix-pence, or four ſhillings a day.

Hoeing beans, five ſhillings an acre, if ſet in rows; ſix ſhillings, if broad-caſt.

Cutting and making faggots of furze, three ſhillings a hundred.

Cutting of turf for fuel, two ſhillings a thouſand.

Felling a timber tree, one ſhilling; cutting up the tops, and making them into faggots, one ſhilling and ſix-pence a hundred; and one ſhilling and ſix-pence a load for the ſtack-wood.

Grubbing roots, five ſhillings a load, and nine-pence a ſquare rod for breaking the ground.

Note. A load of ſtack-wood, is a pile three feet high, twelve feet long, and four feet over; or three feet high, three feet over, and ſixteen feet long.

Making inſide dead edges, three-pence half-penny per rod, and a faggot per day. Outſide hedges, next roads or commons, four-pence per rod, and a faggot.

Note. Sixteen feet and a half in length, is a rod.

Throwing out gravel from a pit, four-pence a load.

Spreading dung upon land, one ſhilling per acre.

Binding hay, two ſhillings a load.

Binding ſtraw, one ſhilling a load.

Cutting a waggon load of fern on heaths, four ſhillings. For this the cutters help to load the waggon.

Cutting chaff, one penny a buſhel. Some men can cut forty buſhels a day.

Thatching hay-ricks, one ſhilling for ten feet ſquare, and one ſhilling and four-pence for bean ricks. If the thatcher finds the pins, he has two-pence a ſquare more. Two men can thatch eight or nine ſquares in a day.

Waſhing and ſheering a ſcore of ſheep, three ſhillings.

Digging new gripes or water-trenches in meadows, the width and depth of the ſpade, one penny per rod; cleaning out old ones, a half-penny.

Ploughing light land, five ſhillings or ſix ſhillings an acre; ſtiff, from ſeven ſhillings to ten ſhillings.

Withs, to bind faggots, are ſix-pence a hundred.

Common hurdles five pence each; higher ones ſeven-pence; gate hurdles of oak, three ſhillings and eight-pence each.

The price of making a dozen of ſuch hurdles as are commonly ſold for five ſhillings a dozen, is one ſhilling and three-pence, and one ſhilling and ſix-pence for ſuch as ſell for ſeven ſhillings a dozen.

Stakes for hurdles, three ſhillings a hundred; five feet ſtakes, five ſhillings a hundred.

Edders to weave the tops of dead hedges, two ſhillings and ſix-pence a hundred.

To meaſure Hay in the Rick.

TRUSSES are cut three and a half feet long and two and a half wide, and if the rick has ſweated as it ought, will be ſo cloſe as not to exceed eight inches in depth; ſome will be nine inches, and often they are twelve.

But ſuppoſe the rick in good condition, and allow eight inches from the bottom to the ſlope, and nine inches thence to the top. If a ſolid cut has been taken from the rick all the way down in proportion to the contents of that cut, we may come at the exact produce of the remainder; but if not, we muſt proceed thus:

Note. As the roof ſlopes away to a ridge, we muſt in this part, allow two truſſes for one, that is, reckon only half what it would contain, if it ran up ſquare.

EXAMPLE.

What is the contents of a rick 35 feet long, 20 broad, and 20 high, that is 10 feet to the ſlope, and 10 feet from the ſlope to the top?

Now 35 feet contains 13 truſſes in length, of 3½ each.
20 ditto 8 ditto breadth of 2½ ditto.

Ten feet to the ſlope is the height of 15 truſſes, 8 inches each; 5 feet the half of ten, from the ſlope to the top, is nearly the height of 6½ truſſes at 9 inches each. Fractions in ſo ſmall a rick is not worth notice.

Now multiply the length by the breadth, and the product by the depth or height.

Truſſes. Truſſes.
10 × 8 = 80 truſſes.
80 × 15 = 1200 ditto in the firſt 10 feet or great body of the rick. Now for the top part:

Multiply 80 truſſes, that is the number in length and breadth by 6½, and the product will be 520, which added to 1200 makes 1720 truſſes, that divided by 36, the number of truſſes in a load, gives 47 loads 18 truſſes. Q. E. D.

ON RABBITS.

RABBITS are more beneficial to the meadow and the public, than any other creature in the iſland.

They feed upon the graſs which will not ſupport any cattle, being too dry and ſhort. The drier and ſhorter the graſs is, the better the meat, and the ſounder, and the more healthy the rabbits, the more they breed and the finer the fur.

Rabbits cannot burrow in good land; of courſe, only occupy common ſoils.

By feeding on good graſs, they will not be fleſhy, but and waſhy; they get fat in froſty and dry weather, and poor in wet and moiſt weather.

The wild rabbit is much better than the tame one, and all the produce of wild rabbits is clear profit to the public and nearly ſo to the farmer. They are next to game, as good a diſh at table, whether broiled, roaſted, baked, fried, or fricaſeed, made into puddings or pies; and almoſt any mode of cookery will make it a ready, eaſy diſh. They are cheap, and within the reach of a poor houſekeeper, and cooked with a ſmall fire; for ſize they contain more meat than any other animal of its ſize; breed every month, take buck a day or two after kindling, and are deſigned by Providence to ſupply our wants in a great and luxurious degree.

A doe rabbit in a warren brings at leaſt five venters in the year, that is, breeds five times, and produces generally five at each venter, which on an average are worth nine-pence each, ſo that a rabbit will yield twenty-five, value eighteen ſhillings and nine-pence more than a ſheep will, with the lambs, on the beſt keeping, conſidering the price of the land they feed on.

Every perſon who has a garden may have a pit dug in it, ſo as to keep and breed them, and ſupport them with grains, and weeds out of the garden, parings of turneps, carrots, or potatoes, or bran, raſpings, cruſts of bread, &c. thrown into the pit, and have them always freſh for table.

To ſuch as wiſh to have a warren, the following will direct them:

To make an Artificial Warren.

THE lighter or drier the ſoil is for a warren, the better.

If the land be graſs, pare off the turf, of a circle about forty feet diameter, and lay it on, on the outſide of the circle, then dig a ditch within the circle, ſix feet wide at top, three feet wide at bottom, and three and a quarter deep. Let the outſide edge of the ditch be cut down perpendicularly; the inner edge ſloping; throw the earth you take out into the middle, to form a hill, two or three feet higher than the level of the lawn, the reſt ſhould be carted away, then lay down the turf on the hill, and beat it well to ſettle it.

This ditch, or trench ſo made, ſhould have two or three pits, drains, or ciſtpools, with an iron grate, or ſtones with holes over them, to carry off the haſty rains. In the perpendicular ſide of the trench ſhould be made or dug out ſix alcoves, the ſides and tops ſupported by boards, or brick-work, in order to give the rabbits their dry food in, and by their different ſituations, ſome of theſe will be always dry, as you may let into the bank ſix boxes, or old tea-cheſts, ſuch as bring the tea from India.

If the ground is light, the perpendicular ſide of the trench ſhould be lined with mud work, or hurdles ſtaked againſt it, to prevent the earth from falling in, as the entrance from the top to the bottom of the trench muſt be by a board or ladder.

If the ditch be only two feet deep, it will give earth enough to form the hill, more then need be carted off. If you are not afraid of having them ſtolen, paling about a foot high round the circle, will be height ſufficient to keep the rabbits in; but if you dread thieves, the paling ſhould be high to keep them out.

When the turf is ſettled and the graſs begins to grow, turn in the rabbits, and you will ſee them immediately begin to burrow in the ſides. To keep the turf the neater, bore a ſcore of holes about a foot deep, and if the ſides are lined with brick-work, it ſhould be done in arches, ſo as to leave ſome part unlined, to let the rabbits burrow in the perpendicular ſide.

Feed them as other tame rabbits, and in wet weather ſprinkle ſaw-duſt at the bottom, which will increaſe the manure. Take it away once a week. Two or three ſuch warrens on a large lawn before a houſe is no diſagreeable object. The rabbits will feed on the top of the hill.

Should the buck kill, the young ones, they ſhould be chained one in each alcove; otherwiſe they ſhould have their liberty.

After a great ſnow they will want ſome aſſiſtance early in the morning, becauſe the trench will be filled up, and perhaps the alcoves, where the hay is, may be blocked up.

There ſhould be one buck to eight or ten does, and ſuch a breed ſhould be choſe as produce the beſt ſkins.

In hutches they breed five or ſix times a year; and five young ones are to be left to one doe, and the reſt killed; but in a warren you cannot get at the young ſo well. Lucerne, parſley, and carrots, ſhould be always reared for their food. Where hay is given, it ſhould be the beſt upland paſture; meadow hay is too coarſe, and they will waſte it.

Forty does may be turned into ſuch a warren, and the produce will be 36s. each doe, £.74: Each worth one ſhilling with the ſkin, at ten weeks old. The additional value of the ſkins in winter, and their dung, will pay for their food and looking after them.

TO MAKE GRASS LAWNS.

LEVEL the ground well, ſow it with turneps twice in ſucceſſion, feed them off on the ground with ſheep, then ſow the land in Auguſt with graſs feeds alone. The next year will produce a fine thick ſward of herbage, as if it had been laid down many years.

ON THE FEED OF HORSES.

HAVING two acres of graſs in the ſummer of 1797, and not willing to turn them into it, I began to cut it for the uſe of the ſtable. In many places it was cut three times over, a good ſwarth each time, and left at the beginning of Auguſt a good lattermath; three quarters of an acre I made into hay, and had a very good load of it, the reſt was cut green and carried into the ſtable, and from the firſt day of June to the ſecond week in September, better than fourteen weeks, it kept a cow and four horſes. Two of theſe were frequently at cart, and to theſe two I gave one quartern of oats each per day, ſo that in all this time theſe three horſes and a cow were fed, and my work done, for twelve buſhels of oats and 1¼ acre of graſs. The graſs worth £. 2 10s. the oats £. 1 10s. together about 4£. not more than about ſix ſhillings a week the four. After this I turned out the four horſes, in the day, into four acres of lattermath which I bought for two guineas, and brought them into the ſtable at nights, and fed them there with oat-ſtraw; to the two that worked I gave half a peck of oats each and this lattermath, kept them in good working condition (not fat, not poor) till the middle of the March following, which was a whole year, wanting ten weeks; the expences as follows:

	£.	s.	d.
6 acres of after graſs	3	3	0
12 buſhel of oats	1	10	0
5½ quarter ditto	5	10	0
The graſs of 1¼ acre	2	10	0
	£. 12	13	0

Thus for £. 12 13*s*. I kept a cow for three months, and four horſes for better than nine months, at about ſix ſhillings a month each.

Horſes will eat carrots, potatoes, turneps, and furze, and do well on each. Carrots is univerſally admitted.

A gentleman of Nottingham has for two months kept fifteen draft horſes on turneps, with very little hay, (no corn) in conſtant work, and they looked plump, and were remarkable healthy. Another has, with the ſame good effect, kept a larger number of draft horſes on the ſame food, and has ſaved one hundred and twenty quarters of oats. The mode of preparing the turneps is by cutting off the tops and bottoms, and chopping them in a trough, and then mixing them with cut ſtraw and hay together; at night the horſes have a little hay only. In order to induce them to eat turneps at firſt, keep them rather ſhort of hay and water, and mix the turneps cut ſmall with bran. A horſe will eat about half a buſhel daily, and an acre will keep ſix horſes four months.

Two horſes of mine in the ſtraw yard with a cow, eat turneps as drawn from the field, with the cow, and preferred them to barley ſtraw. Half an acre of moderate turneps kept my cow five months; the value of ſuch an acre, if fed with ſheep, £. 2. 0*s*. if drawn, £.6.

Sir William Fordyce kept two carriage horſes one year wholly on potatoes and hay. They travelled almoſt every day ſeven miles, from Wandſworth to London and back, and about town, and kept their fleſh well, and looked as ſleek as thoſe fed on carrots. They eat a buſhel a day the two.

Mr. Johnſtone of Hill-houſe, near Kirk Newton, in Mid Lothian, Scotland, feeds his horſes in winter on the ſhoots of green furze, he uſes a machine for bruiſing them that is uſed for tan bark. But the late Lord King, of Ockham, Surry, who fed his farm horſes the ſame way, had them bruiſed on a barn floor with a flail, to take off the prickles. An acre of furze in the natural ſtate, will keep ſix horſes for four months; but as whins or furze cannot be cut but every other year, two acres will ſerve ſix horſes for two winters.

With one feed of corn and whins, the horſes are kept in as good condition, as with two feeds of corn and ſtraw; ſo that all the ſtraw and one feed of corn is ſaved, which valued only at ſeven pence a day for each horſe for ſeventeen weeks, amount to £.17 17*s.* from this deduct the expence of cutting and bruiſing, about five ſhillings, and it leaves £. 13 12*s.* as the produce of two acres of whins £.6 16*s.* yearly.

A Compoſition for curing Diſorders, Defects, and Injuries in all kinds of Fruit Trees, by William Forſyth, for which he received a Premium from Government for diſcloſing the Invention.

TAKE one buſhel of freſh cow dung, half a buſhel of lime rubbiſh of old buildings, (ceiling of rooms is beſt) for want of this, powdered chalk, or common lime after being ſlaked a full month, half a buſhel of wood aſhes, and a quarter of a peck of pit, or river ſand.

The laſt three articles are to be ſifted fine, before they are mixed, then worked well with a ſpade, and afterwards with a wooden beater, until the ſtuff is very ſmooth, like fine plaſter uſed for ceilings.

To prepare the tree for this plaſter, cut away all the dead, decayed, and injured parts, till you come to the freſh ſound wood, leaving the ſurface of the wood very ſmooth and rounding off the edges of the bark with a draw knife, or other inſtrument, perfectly ſmooth, which muſt be particularly attended to. Then lay on the plaſter about one eighth of an inch thick all over the part where the wood or bark has been ſo cut away, finiſhing off the edges as thin as poſſible. Then take ſome dry powder of wood aſhes, mixed with one ſixth part of the ſame quantity of the aſhes of burnt bones, put into a tin box with holes like a pepper box, and ſhake the powder all over the plaſter, ſo as to cover it, letting it remain for half an hour to abſorb the moiſture. Then apply more powder, rubbing it on gently with the hand, and repeating the application of the powder, till the whole plaſter becomes a dry ſmooth ſurface.

As the growth of the tree will raiſe the edges of the plaſter next the bark, it ſhould be attended to, and when this happens, the edges ſhould be preſſed and rubbed ſmooth down with the finger, (this is beſt done when moiſtened by rain) that the plaſter may be kept whole, to prevent the air and wet from penetrating the wound.

Mode of making fine Butter.

THOSE who pride themſelves in having excellent butter, will doubtleſs be pleaſed with the following obſervations, the reſult of ſtudied experience.

The dairy and all the utenſils ſhould be kept extremely clean and neat, airy and cool in ſummer, and not cold in winter.

The cows, if poſſible, ſhould have acceſs to river water.

Cabbage is the beſt winter food, and will procure the moſt and ſweeteſt milk; but milch cows ſhould not eat the decayed leaves. Carrots and potatoes are likewiſe good food. Turneps are the worſt of all green food, giving the milk a diſagreeable taſte.

Should the food give the milk an unpleaſant taſte, put a quart of boiling water into each pan, containing ſeven or eight quarts of milk, as ſoon as the milk is brought home, this will ſweeten the milk and thicken the cream.

Thoſe who make whey butter, ſhould, as ſoon as they have ſkimmed off the cream, warm it over the fire, and then pour it into a pan of cold water. In a ſhort time it will riſe, and may be ſkimmed off, and it will loſe in the operation much of its ſourneſs.

The upright churn makes better butter than the barrel churn.

When butter is long coming (as in winter it is apt to be) put a large ſpoonful of diſtilled vinegar into the churn with every gallon of cream, after it has been churned about an hour.

One ſpoonful of the juice of carrots (which may eaſily be got by pounding them in a mortar and ſqueezing them through a piece of linen or muſlin) put into each gallon of cream at the time of churning, will give winter butter the colour and flavour of ſpring butter.

Butter ſhould be made twice, if not three times a week. The gentry have theirs made every morning: but thoſe who churn but twice a week in winter, ſhould ſkim their cream every ſecond day. The cream firſt got muſt be put on the fire, and having had a goggle or two, be put into jugs, the ſecond ſkimming ſhould be mixed with it, and ſo the third, each time running the whole into another jug, for the ſake of better mixing. This leſſens the defect ariſing from the ſtaleneſs of the cream.

Were perſons to attend to theſe directions, they would find their bntter generally good.

The Advantage of a Pidgeon-Houſe, or Dove-Cote.

PIDGEONS are not an unprofitable thing upon a farm. If they are not fed, they will certainly ſeek their food in corn-fields, during the time the corn is ripening, and alighting

lighting in flocks in particular ſpots, will beat down the corn, and, in ſome meaſure, damage it; but in countries where every farmer has a dove-houſe, they appoint field-keepers, who attend the crops for a month or ſix weeks with a gun, fire powder at them, and keep them from ſetling amongſt the corn. In encloſed countries the hedges will tend to prevent this being done; but in open fields it is eaſily effected. The profit, however, which a farmer draws from them, amply compenſates for any little miſchief they do. In places where they are not cuſtomary, if one farmer keeps a dove-houſe, he may give offence to others; but in this caſe, they might be ſhut up from the middle of July till after the harveſt, and fed; the expence would not be great, perhaps two or three pounds; but even this, I apprehend, will not be neceſſary. Let us conſider then the advantages.

To a gentleman, a ſmall dove-cote is pleaſant and convenient; to a farmer, a large one is profitable. A dove-houſe, with upwards of one thouſand two hundred neſt holes, may be erected for about £30, leſs where materials are at hand. Such a houſe may be ſtocked with eleven or twelve dozen of pidgeons, value £.1 16*s*. Theſe are to be taken when full fledged, ſhut in and fed for about ſix weeks, after which time, they may be let out, and they will return to their home.

A pidgeon lays two eggs, which two always produce a male and female. They continue breeding more or leſs all the ſummer. The time to begin drawing or killing is the beginning of February, and may be continued once a week to midſummer. It ſhould then be diſcontinued till after harveſt, the young at this ſeaſon being ſuffered to fly and keep up the ſtock, loſt by accidental death, or a wanton gun; for a farmer muſt not expect but that ſome of them will occaſionally be ſhot, when at a diſtance from home.

Such a dove-houſe, with luck, will produce one hundred dozen of pidgeons per year. Thoſe killed before harveſt, are the firſt flight; thoſe after the harveſt, the ſecond. The firſt flight will fetch three ſhillings and ſix-pence a dozen; the ſecond, two ſhillings and ſix-pence, contracted for at the place, that is three ſhillings a dozen on an average. The dung in this houſe will produce one hundred and fifty buſhels a year, worth ſeven pence a buſhel, if ſold, filled in lightly; but if uſed upon the land; ſowed as a top dreſſing, after the ſeed is harrowed in, at the rate of eight buſhels per acre, is worth to the farmer two ſhillings and ſix-pence a buſhel; for twenty ſhillings worth at this price, will crop an acre for one year. Some ſpread a greater quantity; but it makes the land too rich, and the crops of corn too rank. According to this eſtimate the profits are:

	£.	s.	d.
100 dozen, at 3s. — — —	15	0	0
150 buſhels manure, at 2s. 6d. — —	18	15	0
	£. 33	15	0

Note. A pidgeon eaten in a farmer's family is more worth to him than three pence.

In wet ſeaſons, pidgeons are apt to neglect their young, and many will be found dead in their neſts; poſſibly it may be worth while to give them a little food in very wet times in ſummer.

If pidgeons do not breed well, the dove-houſe may be over-cocked, that is, have too many cocks; in this caſe, a dozen or two of cocks ſhould be killed from them, and ſhould there, after this, be any want of cocks, the hens will ſoon find mates from the dove-houſes in the neighbourhood, and induce them to their own home.

To increaſe the quantity of dung, the ſtubble ſhould be cut, and occaſionally ſcattered over the floor of the dove-houſe, this will imbibe that nutritious property of the dung, which would otherwiſe evaporate, and increaſe the quantity. By frequent ſcattering, the floor will get bulky. In this caſe, it ſhould be removed, and thrown upon a heap without, by the dove-houſe, in the ſhady or north-ſide, and a freſh quantity be ſuffered to collect. It would be better if the dung-hill could be under cover, or covered with ſtraw; perhaps dung from the farm-yard may do, that is, to keep it from being too much dried in the ſun. But if the farmer would order his maid to collect the urine of the family in a pail, and throw it daily over this heap, it will add conſiderably to its ſtrength, keep it moiſt, and he would find his account in it. It thus, poſſibly might dreſs the land for two years. Twenty pounds a year may be no great object to a farmer; but, beſides the accommodation to his table, even little in the way of gain, is worth his attention. Pidgeons pick up the ſeeds of weeds, and clean the land, and richly deſerve the little corn they deſtroy.

To make the moſt of Ground.

IT is better to have a ſucceſſion of crops, than to let any one crop continue long on it; provided you can dreſs the ground well and keep it in heart.

Potatoes planted early in March, in ground well dreſſed, dibbled in rows fifteen inches between plant and plant, and eighteen inches from row to row, the plant to conſiſt of two eyes, and put five inches under ground, will produce a good crop. Mark the dibber and puſh it down to the mark, that the plants may be all of one depth.

To mark the rows equally diſtant, fix two harrow tines in a frame or board, and ſtraining a line acroſs the field, let a boy walk on the line and draw the frame, and the tines will mark the rows: at the ſecond drawing, one tine ſhould be drawn in the tine, made by the line before, and the ſecond tine will mark the next row. If hoed when two inches above ground, and again a month after, and horſe hoed or dug between the rows, the crop will yield from four hundred buſhels to eight hundred, according to the goodneſs of the ſoil, each buſhel 56lb. that is, from ten tons to twenty tons, and more.

The crop may be taken up in Auguſt or the beginning of September, when potatoes will fetch three ſhillings a buſhel, and the ground may be dreſſed and planted with ſavoys. Theſe ſhould be raiſed in a ſeed, by ſowing the ſeed the firſt or ſecond week in May, and they will be ready to plant the firſt ſhowery weather, after the potatoes are removed. The largeſt plants ſhould be put at eighteen inches diſtance each way; theſe will cabbage in December and continue to February, when they ſhould be cleared off for another crop of potatoes.

	£.	s.	d.
400 buſhels of potatoes, at 3s. — —	60	0	0
One acre of Savoys, at ½ penny — —	38	15	0
Produce of one acre, £.	98	15	0

Comparative Eſtimate of the Profits of a ſmall Farm, between keeping it in Tilth and growing Corn, &c. and laying it down in Graſs, and making it a Dairy Farm for Butter.

FARMERS cannot live now on ſmall farms, unleſs they make five rents yearly; that is to ſay, unleſs the annual produce amounts to 5 times the rent. Let us now take a farm of 80 acres of tolerable good land. On ſuch a ſized farm, it is impoſſible a farmer can keep a team, unleſs he is his own carter, and goes out to job-work at times.

Let his rent then be 16s. per acre —	£.64
Tythe 4s. Taxes 5s. —	36
The team with wear and tear, a man and a boy	130
	230
Now I will ſuppoſe this land ſhall produce 3 rents and a half, after he has paid ſeed, labour, the working, threſhing, ſelling, &c. equal to 1 rent —	224
Loſs	£.6

But let theſe 80 acres be laid down at the beginning of his leaſe, or indeed almoſt at any time during the leaſe, (for I ſhall ſhew that the expence of laying down is paid by the firſt crop) I ſay, let theſe 80 acres be laid down in graſs, and the profit will be conſiderable.

To ſave room here, I will refer to the eſtimate, I have made in page 86, where, ſuppoſing 47s. to be paid for tithe and rent of an acre of good graſs, ſuch as yields a load and a half per acre, I have ſhewn that the profits of a cow, her milk made into butter, will produce 10l. 3s. 6d. Taking it then on this eſtimate, the profit will be as follows:

	£.	s.	d.
80 acres of graſs at 2½ per cow, will keep 16 cows, the clear profits of which, by the eſtimate there given, will be 10l. 3s. 6d. per cow or —	162	16	0
Difference in rent between 47 and 20s. rent and tithe here being only 20s. an acre —	108	0	0
	270	16	0
Deduct 32 loads of wheat ſtraw to be bought to litter the cows, for dreſſing, at 18s. per load	25	16	0
Profit	£.245	0	0

Hence then it appears, that 245l. profit may be made on a farm of 80 acres; and that whether the farmer is at the beginning of a leaſe, or within a few days of its expiration, it is his intereſt to lay it down in graſs, if he is in any reach of a market to ſell his butter, without long carriage, eſpecially when the firſt crop of the land, if rightly managed, will pay the expence of laying down. He need not purchaſe his ſtock of cows till the end of the ſummer. This ſtock will coſt him, ſuppoſe 16 cows at 10l. each, 160 l.

	£.	s.	d.
Rent, taxes, and tithe, per acre —	1	5	0
Three ploughings, paid for at 10s. —	1	10	0
Three harrowings, large and ſmall, at 2s. —	0	6	0
Seeds to lay it down —	0	7	6
Draining — — —	0	1	6
Mowing two crops — —	0	4	6
Making hay twice — —	0	10	0
Carting to barn, 2½ loads; clover, 2 crops	0	6	0
	4	10	6
Two loads and a half of clover hay, at 3l. —	7	10	0
Profit per acre — — —	2	19	6
Acres — —			80
	£.238	0	0

But if this land was laid down with barley or oats, the grain would pay for the ploughings and harrowings, and the profits on the hay would be more.

This mode of farming is attended with no bad ſeaſons, no bad harveſt, nor the ſlaviſh attendance on a corn farm. The buſineſs is half tranſacted by the wife, and the fields are always agreeable, and an ornament to the houſe. J. T.

On Green Food for Cattle.

A GOOD crop of Lucerne produces, if eaten green, 32 tons weight per acre: Cabbages (two crops, one ſucceeeding the other)

other) 50 ton per acre; Carrots 20 tons; Turneps 30 tons, per acre.

One ſuch acre of Lucerne will fatten, in 20 weeks, ſix bullocks, weight 4½ Cwt. or 76 wethers, of 80 lb. weight each Cabbages ditto, 5 bullocks, &c. or 53 wethers, &c.

Carrots almoſt 2 ditto, or 32 ditto
Turneps, ditto 2 ditto, or 24 ditto

A fatting bullock, weight 4½ Cwt. will eat daily of green

Lucerne	1-6th	of its weight,	or 84 lb.
Carrots	1-4th	ditto	126 lb.
Cabbages	3-8ths	ditto	129 lb.
Turneps	1-half	ditto	252 lb.

Note. All cattle eat more at firſt, than they do when near fat.

Capt. Middleton, of Telfton, near Maidſtone, has made the following obſervations on the feed of oxen.

He ſays, that one ton weight of hay will go as far as either of the following:

Eight tons of turneps, the roots only, as we find them in winter.

Eight and a half of ditto, in ſpring or autumn, with the green tops.

Six ditto of Scotch cabbages.

Three ditto of carrots.

Note. A buſhel of carrots weighs 28 lb. Theſe are ſold in the field from 4d. to 8d. per buſhel, ſay 6d. that is, 2s. the Cwt. or 40s. the ton.

If Cwt. of Linſeed oil-cakes at 5l. the 1000, is as profitable as hay at 2l. 2s. the ton; but oil-cakes are ſometimes 8l. the 1000 and more.

On the Feed of Hogs.

HOGS will fatten on potatoes and mazagen bean meal, in the proportion of one and a half buſhel of meal to 10 buſhels of potatoes, boiled and maſhed; but as it will take three months to fatten them, and 25 hogs will eat the above quantity daily, rating the potatoes at 1s. a buſhel, they will have eaten as much when fat, as they will ſell for: of courſe there is no profit but in their dung, and the price of the potatoes grown by the farmer who fattens them; and as 400 buſhels is a common crop, that is 20l. per acre produce, which is perhaps 10l. more than he can make of crops in general. The dung will be about 12 loads, value 3l. 12s.

Hogs fattening on mazagen beans, will not readily eat grey peas.

ON POULTRY.

TURKEYS and fowls, on an average, when dead, weigh 2-thirds of their weight when alive. Thus a turkey that weighs 21 lb. alive, will weigh 14 lb. when dead; and a fowl that weighs 3 lb. alive, will weigh 2lb. when dead.

Poultry about graſs land, ſoon taint the land, and will die away at about ſix weeks old. To prevent this, the breed ſhould be changed every three or four years.

ON SHEEP.

DORSET ſheep ſhould be put to ram in July or Auguſt, others in September and October: they go 21 weeks. The ram ſhould be changed every two years, from ſome other ſtock, but of the ſame breed.

In folding, a ſquare yard is allowed to each ſheep; but in ſome countries they are folded two nights in one place. Three hundred ſheep, will fold 261 yards, in one night. In dry countries ſheep are folded all the year round.

Folding ſheep on arable land impoveriſhes the land where the ſheep are fed. They ſhould be folded on the ſame land; for on Wiltſhire Downs, where each farmer has as much arable land as down, and folds upon the ploughed ground, two acres of this, *i. e.* one of arable folded and one of down not folded, are not more in value than one acre of down, on which ſheep are folded.

It is a miſtaken notion that the larger the flock folded together, the better. The reverſe is the truth: the lambs ſuffer by it; the food is waſted, and the whole flock worſe in proportion to its ſize. By dividing a large flock, it will require more time to fold a piece of ground; but the food will go further, and will pay for the extra ſhepherds.

Sheep are much damaged by *all* driving and folding; they never fold fat ſheep, and why? Becauſe it tends to make them lean, it muſt of courſe make poor ſheep poorer.

Sheep are ſhorn at Midſummer; the ſhorter the wool the dearer.

If farmers have not ſufficient land, they put out their lambs from Michaelmas-day to Lady-day, at two ſhillings and ſixpence, or three ſhillings a head.

In mountainous countries they make butter and cheeſe from the milk of ſheep. Sheep with black horns, or with a blackiſh belly, are little worth. They never fatten well. This is the obſervation of a butcher, who remarked it for years.

The black faced breed of ſheep, the Norfolk, not the South-downers, Mr. Coke of Norfolk, from long experience, has found very unprofitable. It is an invariable rule with him, not to turn them into turneps after March, owing to the damage ariſing from the flow of milk the turneps give in Spring. He feeds them on Saintfoin hay, which yields milk enough for the lambs. Before winter he dreſſes all his flocks, as a guard againſt ticks and lice, with the following: 2lb. of tobacco, 2lb. of ſoft ſoap, 1lb. of white mercury ground to powder, boiled one hour in eight gallons of water. Part the wool once down each ſhoulder and the breaſt of the ſheep, and twice along each ſide, into which pour it. This quantity is enough for ſixty ſheep.

When mutton is five pence, a lb. a live ſheep ſhould, and will, ſell for two pence three farthings; the dead ſheep, as bought by the butcher, is, on average, half the weight of the live ſheep; the odd farthing is out of the butcher's fifth quarter, which he can very well afford to pay; this is the cuſtomary price in Kent.

On ſuckling Lambs, as practiſed by Mr. Ducket, of Eſher.

MR. Ducket ſends five hundred ſucklers to market yearly. Their diet is milk, chalk and ſtraw. Chalk is given to make them white. The beſt breed for this purpoſe is the Dorſetſhire, they weighing from ten to eleven ſtone (8lb. each ſtone) or about 20lb. a quarter. The lambs at eight weeks old, average from 6 to 12lb. per quarter.

Old ewes will produce lambs equally as good as young ones; but thoſe of two or three years old, are allowed to hold their milk much better. When ewes are broken mouthed Mr. Ducket ſells them. He is always ruled by teeth, not by age. The moſt difficult time of the year for covering is May and June; but it is of the greateſt importance, that this buſineſs ſhould take place at this time, it making a difference of more than ſeven or eight ſhillings in the value of the lamb, the great object being to force them for the Chriſtmas market. Thoſe ewes that turn out the beſt Chriſtmas ſucklers, are of courſe allowed to be the beſt dams.

The method of ſuckling is as follows: They are allowed to ſuck every four hours, except at eight or nine o'clock at night, till four in the morning, during which time the lambs and their dams are put and left together. At four in the morning they are ſuckled, and then ſeparated, and the lambs put in a pen by themſelves, with ſtraw and chalk to nibble. At eight they are ſuckled again, alternately ſucking every four hours, their own dams and a ſtrange or baſtard ewe. Many ſuck two or three different ewes. The ewes are bought in November and in Spring. Such as are bought in Spring are turned into rye, tares, or graſs. The general price from twenty-four to twenty-five ſhillings.

The ſuckling houſes have every accommodation. Diſtinct pens are made for the lambs adjoining the interior ſides of the ſuckling-houſe, and the centre compartments are allotted for the ewes.

At the time of ſuckling, a man or a boy holds the ewe by the horns, whilſt the lamb ſucks its fill. When one lamb is finiſhed, it is put into a pen by itſelf, and the ewe or ewes, into another by themſelves, and ſo on, till the whole proceſs is completed, which is repeated every fourth hour.

At four in the morning, before the dams are turned out to green food, grains, hay, malt-duſt, and pollard, are given; that by eating this dry food, their bellies may be partly filled before they are turned out. It requires a man and a boy in conſtant attendance to one hundred lambs.

On Sheep-feeding of Beans.

THE farmers in Cambridgeſhire, Huntingdonſhire, and other places, have found that ſheep feeding on beans is a good method of keeping them clean.

To this end they are turned in, in the day-time, from the time the plants are about eight inches high, and continued in till the beans are in bloom. At firſt they will nip off a head or two, but the bean ſtalk being bitter, they will not eat them, but drop them, and knowing the taſte, will nip off no more, but eat the weeds between them and keep them from ſeeding, ſo that the land, on being ploughed, will be clearer the next year.

Sheep walking gradually and quietly through the crops damage it very little, and even if they lie down occaſionally, and bend it down, it will riſe again; but, to allow for any little damage, they may be ſown a little thicker. By this mode of feeding them clean, beans increaſe in the crop nearly two to one. A field of beans, all circumſtances alike, that produced ſeventeen quarters; when ſheep fed, produced twenty ſeven quarters. Beans in ſuch feeding, will forward lambs, and help ewes much in their milk.

Theſe farmers take out the ſheep when they begin to bloſſom, fearing they will eat the bloſſoms. This ſhould be examined into. I do not think they will, for wild oats are of faſt growth, and may riſe and feed, between the time of bloſſoming and harveſt.

Should ſheep be found to nip off the heads at firſt turning in, it would be well to turn them into other feed in the evening. To take off the edge of their appetite, they might lie among the branches of trees that have been cut off.

Remarks on Pigs.

IN winter time it is beſt to ſell off the pigs, whilſt ſuckling, at three or four weeks old, at four ſhillings each.

Never begin to wean till March, and leave off in July.

A high, dry, clean ſituation is every thing for pigs. It makes them healthy, and well even in wet ſeaſons. They ſhould never lie on horſe dung.

Forty-ſix weaned pigs, from nine to eleven weeks old, will eat daily three pecks of barley meal, worth two ſhillings and ten-pence, that is nineteen ſhillings and ſix pence a week, or about five pence a week each.

Seventy hogs fatting in four months, made one hundred and ſix loads of dung a month, at ſix ſhillings per load, about £.32, if ſold.

Sows of the Chineſe breed will take boar three weeks after farrowing. The pigs may ſuck two months after this, and will then ſtand to hogging. They ſhould be weaned at a week old.

Pigs ſhould lie clean and have room, otherwiſe they will be ſtye baked, that is, ſcurfy and ſcabby with filth. In this caſe, they ſhould be twice a week ſcrubbed with a bruſh and ſoap and water, or wood aſhes, and that till they are clean and well.

To bring up Turkeys.

AS ſoon as hatched they ſhould be dipped in cold water, and a pepper-corn put down the throat of each.

They ſhonld never be expoſed to rain for the firſt ſix weeks. The hen ſhould have a houſe ſomething like a dog-kennel, with a coop or latticed place before it, where ſhe may come out, and take the air and feed. When it rains, ſhe will retire with her brood.

The young ſhould be fed for ſix weeks with hot food, ſuch as young onions or chives, chopped up with eggs. They will eat addled eggs, if boiled, and they will not hurt them.

After ſix or eight weeks the hen and young may have their full run.

ON MEASURING OF TIMBER.

THE ſubject of this chapter is rather out of the line of farming; but the work being calculated for the uſe of country gentlemen, ſuch may occaſionally have timber to ſell, and to ſuch, the method of meaſuring it may be acceptable.

Timber is paid for by the cubical foot; and, to get at the exact dimenſions, they take the girth, or meaſure the circumference in the middle of the body of the tree, between the root and the part where it forks or branches off. Should there be a ſwell in the middle, the buyer is at liberty to take the girth in any place nearer the root.

The girth thus taken, four inches are allowed for rind, and a fourth part of the remaining number, of which the girth conſiſts, muſt be firſt multiplied by itſelf; the product in inches muſt then be multiplied by the number of feet, of which the length of the body of the tree conſiſts, and this product, being divided by 144, the cubical inches in a foot, gives the true cubical feet in the tree.

What are the cubical feet in a tree 17 feet long, whoſe girth is 9 inches? Anſwer, as below, 9 feet 6 inches.

Multiply 9 Inches girth
by 9

Multiply the product 81 Inches
by 17 feet, the length.

567
81

feet inches
Cubical inches 144) 1377 (9 6
The half of 144 1296

is 72) 81 (1 half foot, or 6 inches
72

9 This remainder, if further divided, would give fraction, which is not neceſſary.

The top of the tree is generally given to the purchaſer, for cutting it down, and carrying it away.

All under 6 inches in the girth is accounted top, and not timber.

Where there is a fork above 6 inches in girth, one of the prong pieces only is reckoned in the length.

Fifty ſolid or cubical feet, is called a load.

No part of a tree that is not ſound, is meaſured into the length.

Gunter's ſliding rule is that by which timber is meaſured. This rule, with a book of explanations, may be bought at any mathematical inſtrument-maker's.

		s.	d.	
Crab-tree is worth 1s. a foot, or	—	50	0	a load.
Pear-tree about 7d. a foot	— —	29	2	a load.
Elm is worth about	— — —	36	0	a load.

Cherry-tree is worth a ſhilling a foot.

Oak ditto, but is the more valuable, according to the bend of the timber, as it will ſerve for ſhip-work.*

Every country carpenter knows the price of timber, which varies according to the ſituation of the place, and diſtance to be carried,

Forty yards of bark, 3 feet and a half high, ſet up againſt poles, is called a load, and is worth about 35s. or 40s. The price of barking about 12s. a load.

This was the price about 10 years ago.

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* Theſe prices were in 1790. They are now higher.

FINIS.

ERRATA.

Page 65, line 8, for hurt, read *hove*.
——— — 24, for graſs, read *grow*.
—— 88, — 2, for 15 3 6, inſtead of 9 3 6, read 16 3 6, inſtead of 10 3 6.
—— — — 6, for 15 3 6, read 16 3 6.
—— 89, — 10, after keeping, read *them*.
—— 92, — 5, for heads, read *beaſts*.
—— — — 14, for vanes, read *veins*.

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